

APPLE'S NEW iBOOKS REVIEWED



MORE NEWS, MORE REVIEWS

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Macworld

***Mac OS X
is here!***

Your survival guide
**New look, programs,
and way of life**

FireWire drives
We pick the best hard disks

Inside XML

Ergonomics for kids
Safe computing for children

Photoshop colour tips

Mac first aid
How to cure common ills





Simon Jary
editor-in-chief

10 sure ways to ensure your high-risk installation of beta-version Mac operating system software doesn't go unnoticed.

Bluffers' guide to OS X

"Listen to your audience 'ooh' and 'ahh' more than a crowd of kids on Bonfire Night"

The public beta version of Apple's all-new next-generation, all-singing/all-dancing operating system is available now (see pages 20-21, and 70-82). All you need is £25 and the ability to cross your fingers for at least four months, and you'll find yourself at the forefront of Macintosh computing.

The road to Mac OS X enlightenment is crowded with many obstacles: missing drivers, non-optimized applications, and a bare-bones manual, for starters. Add to that the terror of the unknown (*what the hell has Apple done to the Finder?!*), and you'll soon discover why everyone else didn't rush to sample the delights of living on the edge.

Stick with OS X, however, and you'll be the envy of your friends and colleagues. OS X's Aqua interface looks simply superb next to the rather plain Platinum desktop of Mac OS 9. Don't hide your brave adventure from the rest of the world. Embrace change and nail your Aqua colours to every cubicle in your office.

Here's *Macworld's* top 10 tips for bluffing your total mastery of Mac OS X, and becoming the hero of all around you.

1. Don't, for God's sake, pronounce it "Mac OS X" – it's Mac OS "Ten". One mention of the letter "X" and you're exposed as a fraud. Apple itself hasn't got the foggiest what to call its upgrades to the new operating system – OS X.I is OK, but OS X.IV looks more like the date of the Roman invasion of Britain.

2. Pump up the Dock to its maximum size and maximum magnification. This will help you in two ways. First, installing Mac OS X is all about showing off. And the Dock is the most showy part of the whole Aqua interface. Minimize all available documents. Roll your mouse (one of the new optical ones, of course) slowly over the Dock as if you were stroking a sleeping tiger. Listen to your audience "ooh" and "ahh" more than a crowd of kids on Bonfire Night. Second, enlarging the Dock will slow down even your multiprocessing G4 Power Mac to a crawl – letting you work out where the blazes you're supposed to be, before your onlookers realize that you don't know what you're doing.

3. Load as many QuickTime movies as possible, and stick one in every single folder you create. Mac OS X's ability to play QuickTime movies even in the Finder's third Preview column is another sure-fire hit with those backwards-thinking OS 9 users. Make sure that these movies are trailers to the very latest US box-office releases – never miss the chance to show how culturally far ahead you are to those who still think Sherlock 2's interface is pretty shocking.

4. Aqua-fy everything. Apple has added the ability to turn the glowing and throbbing bright blue parts of Mac OS X into a cold, hardly noticeable Graphite. Stuff that (with the Carbonized Stuffit, of course...)! Your use of Mac OS X must be as conspicuous as an Uncle Sam impersonator at one of Saddam Hussein's dinner parties. Turn your display to maximum brightness, and get as many pulsing Aqua Progress and Default bars on your screen as pixelly possible.

5. Be ruthless about the old ways. No matter how much you miss the simple, familiar interface protocols of Mac OS 9 and earlier, you must constantly rubbish such antique items as the Chooser, control panels, and the Apple Menu.

6. Let others "have a go". Watch in amusement as your friends suddenly don't know anything about the Mac any more. Chuckle when they attempt to pull-down menu items from the central Aqua Apple logo. Guffaw when they try printing a document.

7. Get connected to the new, optimized Address Book. Sure, it's almost impossible to work-out the wayward thinking behind this free OS X utility. But, remember that if you can't work out what's what, no one else is going to have a chance to send or receive emails from your OS X-loaded Mac. Kudos!

8. Draw yourself a map. Keep it hidden, but a map is the only way that you can keep track of where your files are on your hard drive. It gets easier as you get used to OS X, but, for the first weeks, locating anything with the new Finder sure is tough going.

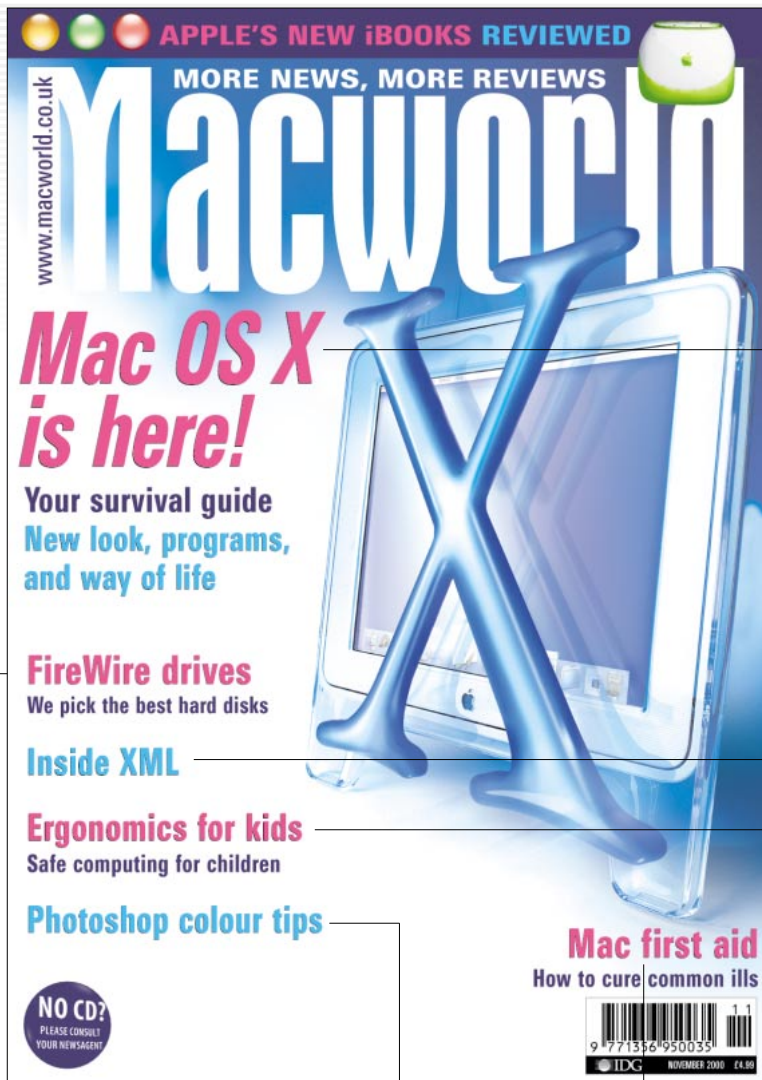
9. Nest like a desperate cuckoo. The more folders that you have nested in other folders, the more fun navigating gets when you've got the hang of the Finder. Then you can flick around innumerable folders, making onlookers dizzy with the new List column views speeding past their wide-open eyes.

10. Keep very quiet about Classic, Apple's crafty way to let you do all your important work in Mac OS 9 while still being able to play with the Dock when anyone else is watching. Pretend that all of your applications are early Cocoa alphas or beta Carbons. Install the 'Aquatika Z' Appearance Theme for Mac OS 9, so that even when working in Classic, it looks like you're a fully paid-up member of the "Mac OS X or nothing" community. (Don't let anyone get their copy-cat mitts on Aquatika, mind.)

Obey these simple rules, and your Mac screen cred will rise sky high. Next month, we'll look at how you can explain away the almost total lack of work you've been able to crank-out recently, and why the ink-jet hasn't needed any new paper since September. **MW**

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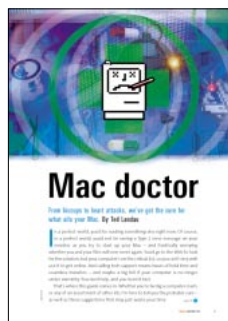
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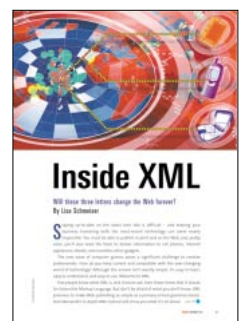
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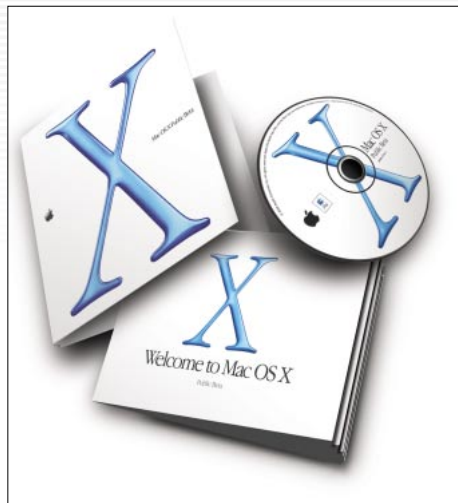
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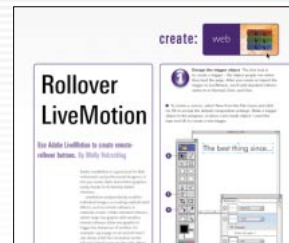
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Users demand UK show

Franco-phobia

Apple intended its Paris show to be a pan-European event – drawing in crowds from other major markets, such as Germany, Italy, Spain and the UK. But many travelling visitors voiced their anger, as the vast majority of the show stands were manned by French-speaking staff only.

Microsoft, Adobe and Epson were just three of the big names to focus solely on the French-speaking public that made up over 95 per cent of show goers.

Hewlett-Packard handed out promotional material only in French, and countless others regarded the show as purely a Gallic affair.

Despite some companies trying to address other languages – including Apple itself and Macromedia – there was not enough English spoken to justify the cost of attending, according to Web designer Brian Bewley. “My hotel and travels costs added up to hundreds of pounds, and all I get to do is gawp at the new iBooks and try to catch the odd word in French,” he told *Macworld*.

Reader Dale Nicholson wrote in to say that he “assumed” that English would be predominant language at Apple Expo, Paris – as promised by show organizers, Reed OIP.

“However, almost all of the show was conducted in French, including demos and seminars. All the keyboards and Mac OS on the display machines were set to French. So until someone out there invents a USB-enabled Babel-Fish, I’m off to get French lessons.” Apple, however, is unlikely to change its position, and is planning to keep its European event in Paris next year.

London calling

Meanwhile, exhibitors and organizers hailed The Expo 2000 – held at London’s Business Design Centre two weeks after the Paris show – as a great success. Despite Apple boycotting the event (the only Mac-specific show in the UK for three years), 10,450 visitors came to the event, according to the organizers. Reseller MacLine achieved £355,000 sales over the two-day event, it claimed.

The Expo, 2000 was originally conceived by ISP AppleOnline’s executive director Farhad Alaaldin, as a reaction to Apple’s decision last year to cancel its official UK show indefinitely. Apple had set-up and then cancelled UK Mac shows three years in a row. Many exhibitors signed up for the show at the eleventh hour, complaining of a French slant to Apple’s official European event last month.

George Leptos, UK manager of storage maker LaCie, told *Macworld* that he “didn’t get the impression there were many European visitors at Paris. It was a very local European show.”

Another notable absentee was Adobe, which claimed that it lacked the budget needed to finance another appearance at an exhibition this year.

Despite this, Alaaldin said that initial conversations in the aftermath of the successful event show that Adobe is likely to make an appearance at next year’s show. Epson, another absentee this year, is also likely to reconsider in time for next year’s show – to be held again at London’s Business Design Centre, November 22-24, 2001.

Exhibitors expressed satisfaction at the event. Trish Hawkins, of UK distributor AM Micro, said: “It’s good to see a Mac show in London. We’ll be



back again next year.”

Newer Technology’s president, John Nelson, had flown over from Newer’s Wichita HQ to attend The Expo. “It’s a nice show,” he observed.

Neil Wright, head of marketing at Computers Unlimited, said: “It’s been busy. It’s nice to see how much the UK Mac community wants a Mac show here. Adobe should have been here, although I understand that they hadn’t budgeted for it.”

Alaaldin told *Macworld*: “We are willing to do anything we can in order to get Apple here next year.”

UK show welcomed

Despite the absence of key players, such as Apple, Adobe and Epson, over 10,000 eager Macintosh users flocked to the London-based Expo 2000 at the end of September.

The Macromedia and Computer Warehouse stands (above, top) were busy all through the two-day event. Newer Technology demoed its iMaxpower G4 iMac upgrade card at distributor AM Micro’s stand (pictured above, bottom). The G4 processor upgrade won one of *Macworld*’s coveted ‘Best of Show’ awards in London – see page 27 for more details.

Also exhibiting in London were Quark, Microsoft, HP, Heidelberg CPS and Wacom.



Subject: OS X Beta blockers

O joy! A new OS for my Mac. O horror! I had to pay £25 for a half-finished version, and get no refund against the cost of the full product next year.

How can Apple, with its loyal customers, screw every last penny out of them?

Come on Steve Jobs, how about some credit for all the suggestions and beta testing we do – to say nothing of the Apple products we already buy. Dom Harlow

■ For Steve Jobs to request feedback about Mac OS X, and then have the audacity to charge £25 to help iron-out the doubtless numerous bugs is quite outstanding work. Well done, Apple – you’ll gain a few quid on your balance sheet at the cost of peeving your core customer-base once again. Nick Vyse

Subject: Product longevity

Less than two years ago I bought a stand-alone Radius ProSense Display Calibration System, and it worked fine.

However, I’ve recently upgraded my Macintosh operating system to 9.0, and the ProSense no longer creates a ColorSync profile.

Radius Vintage says the ProSense Calibrator isn’t OS 9.0-compatible, and that there’s no software patch available to remedy the problem.

I spent more money on the calibrator (over £500) than on my AppleVision 1710 Display – and now it’s obsolete.

I feel there should be legislation to bind manufacturers to a minimum period of product support –

Your Star Letter wins a Palm IIIc, worth £349

We reward the best reader letter with this highly recommended Palm handheld computer – with colour display and Mac desktop organizer software. Its lithium-ion battery lasts more than two weeks with normal use, and recharges in your Mac-compatible HotSync cradle in minutes. Write to Letters, Macworld, 99 Gray’s Inn Road, London WC1X 8UT. Or email letters@macworld.co.uk.



the transgression of which guarantees the customer either a full refund on their obsolete product, or an up-to-date replacement.

Computer software/hardware in particular seems littered with instances where the customer has been ridden roughshod. John Clark.

Subject: RAM raiders

I’ve just tripled the RAM on my iMac to 96MB, and, although pricey, I was looking forward to having more apps open, faster redraw times and greater stability. Software manufacturers, though, have other ideas.

The minimum requirements for Mac OS X Beta is 128MB, so I can’t even test-run the new Apple OS – and that’s before trying to run Photoshop or XPress on top. No wonder Apple made the G4 Cube expandable to 1.5GB of RAM.

As for apps, Dreamweaver and Fireworks together take up about 80MB – so I’m struggling to run even my existing Mac OS. Bang goes my investment.

Are software companies becoming lazy at coding at our expense? They should be made to develop and test on iMacs with 32MB of RAM.

Curtis Alcock

Subject: Cable fable

Apple makes great play of machines such as the iMac, and now the Cube, being sealed units and clutter-free.

In practice, however, the mess is worse than with a PC. I’ve bought a Cube, and alongside it on my desk is its transformer, a USB hub, a Zip and Jaz drive and a CD-R – all with their respective transformers and cabling. What a mess it looks!

Surely Apple should launch iMacs and the Cube with

Star Letter: OS X street party

The release of the Mac OS X public beta was an historic day for Macintosh users. Why? Because it’s now a whopping 13 years since Apple first began planning a ‘modern’ replacement for the Mac OS.

Apple engineers first sketched-out plans for a replacement for the already-ageing Mac OS in spring 1987. It was codenamed Pink. It was to be followed by equally doomed OS projects, including Taligent, Raptor and the notoriously, chaotic Copland.

Rhapsody followed, after then-Apple CEO Gil Amelio’s \$427 million purchase of Steve Jobs’ company, NeXT, in 1996.

It took another two years before Mac OS X emerged, and a further two years before this public beta.

So here we finally are. Macintosh users have access to a modern, multitasking, protected memory-equipped operating system from Apple. Hallelujah! Let the street parties begin!

Cameron Paterson

in-built peripherals bays whose power is drawn from the Mac’s power supply. It would mean a cable-free desktop – and, because of FireWire, devices would be interchangeable.

Paul Reading

Subject: PC whirl

I read Neil Beck’s letter about inexpert and unwilling Mac outlets (October issue) with interest, and have had similar experience with PC World.

I recently visited PC World in Watford to buy a PowerBook to augment my existing IBM Thinkpad, only to be told that the only model in stock was the display machine, and that there were “no plans” to restock any time soon. Neither could I buy any Mac games.

Why do they even bother to have iMacs and G4s in their showrooms if they’re unwilling to sell them?

Jon Morby

Subject: BT? Beats me!

It’s outrageous that BT won’t write Mac drivers for its consumer-level ADSL. This

leaves Macintosh users with two unpalatable options: buy a PC as a gateway, or go for the more expensive business ADSL.

Mac fans should hit back, by not using a single BT service, including home lines and public phones. It would lose a lot more money than it would make by charging us the higher business ADSL fees.

Maybe this would make BT understand that the Macintosh community resents being treated as second-class citizens. H Miersch

■ I had a second phone line put in my house for Internet use. Not an uncommon arrangement. However, I only get a maximum speed of 36-38Kbps on it. When I take my PowerBook downstairs to the older line – now used only for voice – I get speeds in the high 40s. Why?

No one seems to care. Least of all BT. My last bill was the biggest ever. How can something so fundamentally important to our online lives be so inconsistently provided? Bruce Douglas

Letters continue on page 12

continued from page 11 ►

Subject: Clash war

I purchased an Apple G4 Cube from the AppleStore and found out from Apple support upon its delivery that the large Apple Cinema Display works only with the newer version. I also had a Pro Keyboard order cancelled because the new keyboard is incompatible with the rest of the Mac line!

Because Apple doesn't seem to be highlighting these ludicrous incompatibilities, I thought I'd better warn other unsuspecting Macintosh users.
Mike Forsyth

Subject: Tax on Macs

Congratulations to Dominique Fidèle on the article "At last online banking comes to the Mac" (October). It's pleasing to see so many banks are now becoming Mac-friendly. However, Dominique failed to mention the grandfather of online banking – the Bank of Scotland – whose superb online banking service, HOBS, has been available to the Mac as long as there have been Macs.

Perhaps Dominique could turn her focus on highlighting how government departments, such as the Inland Revenue (IR), are Mac illiterate. Currently, one can only submit a Self Assessment form to the IR using a Windows machine. Mac fans are barred for "security reasons".
Michael Ayland

Subject: Mac banker

Further to your article on Internet banking for the Mac (October 2000), HSBC provides Internet banking to Macintosh users for normal accounts, not only through First Direct.

The service doesn't rely on any platform-specific software, using Internet standards such as JavaScript instead. This means that Internet services can be accessed from any computer running a browser that supports the relevant standards. Surely this is the way all companies should provide Web services. If they did, then our worries about gaining access from our favourite operating system would be a thing of the past.

Dai Jones

Subject: OS X Beta meter

I have been using Mac OS X Beta and unless Apple improves it dramatically I'll be sticking with OS 9 with the Aqua theme installed. Or I may – for the first time ever – buy a Windows machine next time.

I think a Windows machine with full support for 3DFX cards and a wealth of games to choose from is a good choice at the moment.

I have been using a Mac for graphic design for five years, and have always thought they were the best. Now I realise Macs and PCs are the same –

Trash

Apple's warm-glow
Tangerine colour

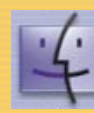


The Dutch went mad for it. *Macworld* writers loved it. Its golden glow shone out like none other. But Apple trashed its Tangerine colour scheme in favour of Sage on the iMacs and Key Lime on the iBooks. What a bunch of lemons...

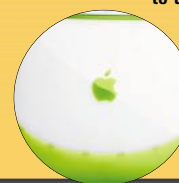


Flash

Apple's new lurid
Key Lime colour



Green is the colour for today's Apple. From the subtlest of verdant shades (Sage) to the most lurid of astroturf hues (Key Lime), we must wave goodbye to the old orange order and eat up our greens.



except one gives you access to any software you want, and one has Steve Jobs at the helm.

Paul Markham

Subject: Chooser loser

Mark Allen asks what is so bad about the Chooser (Letters, October). Well, I tried to install a printer recently but couldn't complete the process because it wouldn't appear in the Chooser. After phoning a helpline I discovered that the Chooser can display only 32 items, and had to delete some items before my printer would appear. Being an inexperienced user, I was worried that I'd lose something essential. Adding a printer ought to be a simple task, but this method was hardly intuitive in the way that Macs are famed for. Windows is ahead in this respect. Good riddance Chooser, I say.

Tony Watson

Subject: Sticky situation

The big problem with the 22-inch Cinema Display (see image, left) is price. So, I've come up with a better alternative – a larger screen for £20 less. Just buy four of the smaller 15-inch displays, and disassemble and reattach the screen components together (double-sided sticky tape should do the trick). You now have a

30-inch traditional-ratio screen and can spend the extra on electrical insulation gloves.

David Jones

Subject: Net loss for iMacs

The iMac is an Internet-ready machine, so why aren't there more Mac goodies out there for users? There seems to be plenty of free fonts, screensavers, downloadable apps, audio or video clips, and on-line site builders for Wintel users.

J. Brindley

Subject: Not so easy PC

Six months ago I upgraded my G3 to Mac OS 9 – and I have a machine with the worst operating system in the world. It crashes repeatedly, takes all day to load a Web page, and frequently disconnects me in the middle of a download. There are hardware and software conflicts, missing and corrupt files, installations which disappear, and programs that refuse to run.

For the first time in my computing life I've had to use a helpline. Today it's gone back for repairs. I haven't had so much heartache and disappointment for years. But then, it is my first PC. As for my Mac running on OS 9. Well, that's always run perfectly.

Colin Lindsay



This month's packed cover CD includes tryout versions of Macromedia Flash 5, BBEdit 6 and SoundJam MP Free 2.5.1, 30 serious demos – as well as a stonking two-level game. Over to Vic Lennard...

MAIN ITEMS ▼

**Macromedia Flash 5 30-day tryout**

Flash 5 fuses the precision and flexibility of vector graphics with bitmaps, audio, animation and advanced interactivity to create brilliant and effective Web experiences. Flash 5 easily integrates with existing Web production workflow, supporting direct import from Macromedia FreeHand and Fireworks. Flash 5 also provides powerful development tools for creating advanced sites and applications, including tight integration with Macromedia Generator.

New features include familiar tabbed docking panels and a new standard user interface; native pen and sub-selection tools for precise vector graphics; Movie Explorer for improved organization and structure navigation of documents; QuickTime and RealPlayer support; and much more.

Take the full package for a 30-day test drive.

**BBEdit 6.0 trial**

BBEdit is optimized for the editing, searching, transformation and manipulation of text. It provides an array of general-purpose features that are useful for many tasks, especially for software developers and HTML authors.

Version 6.0 incorporates a host of new and enhanced features, including support for HTML 4.01, XHTML 1.0 and WML 1.1, and contextual menu access to HTML markup.

Try the full package for 24 launches.

**Shogo: M.A.D. 1.01**

Shogo: Mobile Armor Division is an anime-inspired first-person shoot-'em-up that features Monolith's LithTech engine. The purpose of the demo is to give you a general idea of the game's basic concept. While the demo is limited to two levels of single player and two levels of multiplayer, you can still get a good idea of both types of situations. It needs a 233MHz or faster PowerPC G3 or G4, Mac OS 8.5 or later, 96MB available RAM, 80MB hard disk, OpenGL 1.1.2 and GameSprockets 1.7.3.

**SoundJam MP Free 2.5.1**

Version 2.5.1 has significant improvements to the MP3 encoder (including support for dual-processor G4s), and playlists have been revamped – a hierarchy of folders and sub-folders can be created much like in the Mac's Finder. SoundJam now sports a stream tuner that automatically finds music over the Internet and even allows you to stream music from your computer using a re-broadcaster.

This is a 14-day, 30-encodings trial that then reverts to being a simple player.

**Coda Finale 2001 demo**

Coda Finale now includes a number of Web options such as Save As Web Page and Distribute on Net4Music. It also incorporates MicNotator for automatic notation and MIDIScan/SmartScore for the direct scanning of files. The new Find Parallel Motion plug-in analyses music for parallel fifths and octaves, and the guitar entry screen now has a fretboard editor.

The demo is save- and export-disabled, with a watermark on printouts. page 16 ▶

Cover CD NOVEMBER 2000

INSTALL

Before you start working your way through the software on our CD, go to the System Utilities folder and make sure you install the following:

■ Acrobat Reader+Search 4

Install this version to be able to read many of the on-screen manuals.

■ Stuffit Expander & DropStuff

Versions 5.5, 5.1.2 and 4.5 are included.

■ System tools & ATM Lite

The CD also carries the latest version of InternetConfig, UnZip 5.32 and ATM Lite 4.6 (required for Suitcase 9).

■ QuickTime 4

Some programs require QuickTime 4. This can be downloaded from www.apple.com/quicktime/download.

INSIDE MACWORLD



ColorBlade

Preview and create HiFi separations in Adobe Photoshop.

MusicMatch Jukebox

MP3 software for recording, downloading, organizing and playing.

USB Overdrive 1.3.7

Universal USB driver for all USB peripherals including mice and joysticks.

iMalc 1.1.0

Replace the standard Apple calculator with a fully featured one.

Time Palette 4.0.3

Calculates the current local time for any place in the world.

Plus...

Conflict Catcher 8.0.7 demo, File Buddy 5.3.8, Funnel Web 4.0 demos, Gauge PRO 1.0.2, Peek-a-Boo 1.5, Program Switcher 5.5.0, Snitch 2.6.5, Switcher-Master 1.3.0, Switcher-Setup CM 1.1.1, TattleTech 2.81, Ultra Recorder 2.4.3.

Interarchy 3.8

Powerful and flexible Internet interface formerly known as Anarchie.

Ultra Lingua FR-ENG

Popular French-English dictionary – formerly Le Franglophile.



IntelliNews 3.0

A specialized Web browser that brings you all the headlines and news!

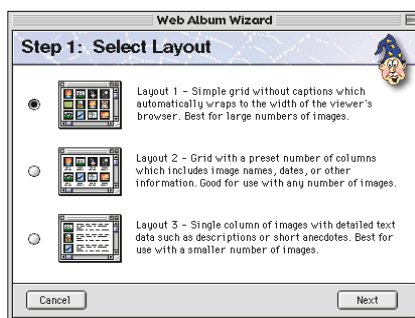
CD CATALOGUE



Courtesy of Mark Pirri's superb DiskTracker program, Macworld brings you a searchable catalogue of all our CDs from 1997 to 2000 – over 191,000 files! This will grow month by month to allow you to find any file you want, without wearing out your CD-ROM drive. The latest version of DiskTracker (2.0.2) is also included – don't forget to register if you find our library useful.



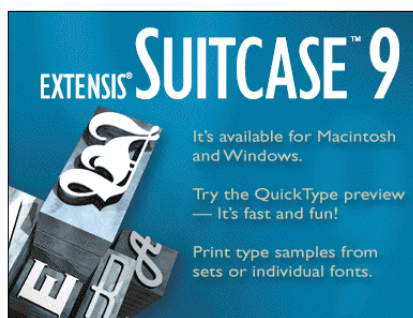
SERIOUS SOFTWARE *includes*



Web Album Wizard 1.2

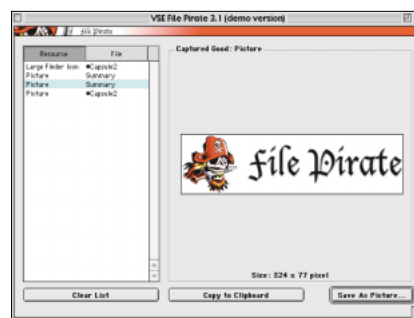
Web Album Wizard is an easy to use, step-by-step application that allows you to put your digital photographs (in JPEG, GIF or PNG image formats) on the Internet in neatly arranged thumbnail-gallery format with a minimum of fuss. It includes three different layout and captioning options and requires no knowledge of HTML to use. If you can upload a folder to your ISP or hosting service using your FTP software, then you have all of the knowledge you need to use Web Album Wizard.

This demo version inserts a Demo thumbnail for every other image catalogued. Requires QuickTime 3 or a full installation of QuickTime 4.x.



Extensis Suitcase 9.01

Suitcase 9 provides speed, stability and compatibility with current operating systems. Systems run faster and crash less when fonts are managed and activated only when they are needed. Suitcase 9 also provides powerful font previews to help you make the right font selection. Adding or deleting large numbers of fonts to/from Suitcase 9.01 is now up to 6 times faster. You can view fonts by font suitcase or by font face. Additionally, the Suitcase Font Engine memory requirements have been reduced to 4.5MB, and the OS 9 problem that kept application font menus from being refreshed has been fixed. Try the full package for 30 days.



VSE File Pirate 3.1

Find the hidden multimedia library that lies within your files! VSE File Pirate extracts sounds, pictures, icons and text from your games, applications and documents. You already own tons of pictures, dozens of sounds and a huge number of icons – VSE File Pirate will unearth these hidden treasures for you.

VSE File Pirate scans the resource fork of all Macintosh files and only finds data that is stored here. Find "easter eggs", those amusing tidbits that programmers hide in their creations.

Check the Summary file for issues concerning copyright. Demo is fully functional but marks all pirated items.

Cover CD NOVEMBER 2000

GAMES WORLD

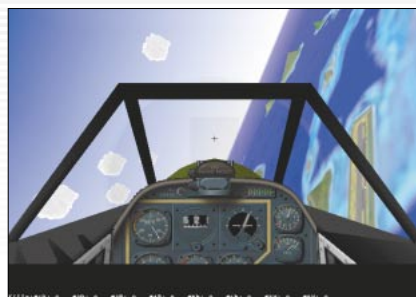


Krilo 1.3 demo

Krilo is a fast and fun puzzle/strategy game suitable for all the family. The object of Krilo is to clear each level by breaking all the blocks – a Krilo can break a block if it is the same colour, and if it bounces into a monster of the same colour it turns back into a Krilo so freeing your trapped friends.

Krilo requires quick reflexes and good strategy skills to complete each level, providing hours of clean, non-violent entertainment. Krilo also contains a level editor (not included in the demo), so players can design their own playfields.

Requirements are a PowerMac with thousands of colours on-screen and 9MB available RAM.



SkyFighters 1945

SkyFighters 1945 is a World War II era flight sim featuring realistic handling of historic aircraft. The focus is on dogfighting, both against the computer and other players, and destroying ground targets. This is a preview version that will give you a chance to get familiar with how the aircraft fly, take off and land, and shoot down the other non-aggressive aircraft. The full version includes 30 missions to complete and an online feature that allows up to eight people to fly together.

Requirements are a Power Mac, RAVE or OpenGL (depending on which version you run), and a 3D hardware-accelerator. Any currently shipping Mac satisfies these requirements.

FAULTY COVER CD-ROM?



•If your cover disc is broken and you want a replacement CD, please contact Kelly Crowley, on 020 7831 9252, or email at kelly_crowley@macworld.co.uk.

•If your cover CD doesn't seem to work as it should, please check you have read all the instructions on the cover disc pages carefully first. If it still doesn't work, then please email Woody Phillips at woody@macworld.co.uk.



DEMOS & GAMES



Keno Buddies

Our third demo for this month is **Virtual Wings Pro 1.6** where you get to fly one of two commercial light-aircraft.

The Top 10 Shareware Games folder includes the latest versions of some favourites – **David's Backgammon 3.9**, **ManicMinefields 1.4.1**, **Peg Solitaire 1.11** and **MemoryPict 7.1**. Also up for grabs is **Σ Chess 5.0 Lite**, a full-featured version of the popular board game.

Additionally, this month you'll find **Breaker**, an addictive little arcade game that is a cross between Centipede and Pac-Man, **Mimic 1.1**, a musical play on 'Simon Says', and **Runestone**. And if you play the National Lottery you'll love **Keno Buddies**.

Finally, there's **The Oompas Game** which defies explanation...

ALSO ON THE CD



COMMS & INTERNET

30 applications including:
CreativePage 2.1
DownloadAssistant 2.6
Optima HTML 2.1
XML Tools 2.1

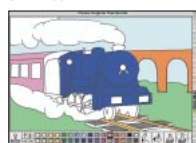
EDUCATION

Three programs including:
Doc Geographer
English-German Dict. 2.4

FORMATS

Font Smoothie 1.2
LogotypeMaker 1.1.4

GRAPHICS



14 items including:
Etchelon Macdoodle 2.0
Etchelon Tracer 3.7.1
iView Multimedia 3.8.4
PanoTools 2.1
TextureMagic 1.3.2

ICON UTILITIES

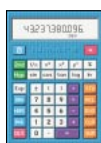
CP IconEdit
KSRandom

INFO



ATPM 6.09
MyMac 65
plus three other items and 10 utilities for developers

MATHS & SCIENCE



Seven programs including:
CalcWorks SE 1.6.1

SCREENSAVERS

MyPicture

SOUND & MUSIC



14 applications including:
Audiocorder 1.9.8
GrooveRecorder 1.0
Sound Studio 1.4.3

UTILITIES

Ten categories comprising over 90 useful tools for your Mac including:



ABF Attributes 1.6
ABF Select 2.0
Default Folder 3.0.7
Disk Label Pro 1.1.1
File Buddy 5.3.8
iOrganizer 1.2
iUnit 1.2
iWrite v1.3

MacArmyKnife 2.1
MacDICT 1.4.2
PrintToPDF 2.1
StevePerfect 4.5
TextBroom 2.5.5
Tex-Edit Plus 4.0.1
TextSpresso 1.7.1
UtilityDog 1.2.1

UPDATERS

This month's dedicated updaters folder includes over 60MB of patches to bring many popular applications bang up-to-date, including:
EditDV Dual Processor Upd.
FileMaker Pro Web 5.0v6
FLIGHTCHECK v3.9
FreeMIDI Update 1.45
MacLinkPlus Trans. 12.001
MOTU Audio System 2.1.1
MouseWare 3.5.1
MouseWorks 5.50
Norton AntiVirus 5/6 (09/00)
Peak LE/TDM/VST 2.52
QuarkXPress 411 fixit
SoundJam MP Plus v2.5.1
Virex (09/00)

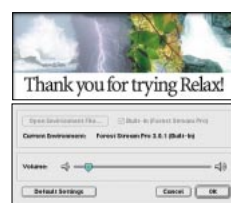
DON'T MISS...



Cool Extras

Relax 2.5.3 – enjoy the sounds of a natural environment. Demo works five times.

The Apple Startup Set – change your start-up screen. Requires ResEdit.



Mac ISPs

Internet access offers from AppleOnline, easyspace & FreeUK.

Netscape

Complete packages for Communicator 4.75 and IE 5.

Plus...

... many thanks to Simon Youngjohns for our CD icons.

SHAREWARE



Shareware is a distribution method, not a type of software. It makes fitting your needs easier, as you can try before you buy. Shareware has the ultimate money-back guarantee – if you don't use the product, you don't pay for it. If you try a Shareware program and continue using it, you are expected to register. Support shareware authors so that they continue to provide high-quality programs for the Mac.

Mac OS X and new at Apple Expo Paris

Apple used its first European Macintosh show to release the long-awaited Public Beta of Mac OS X, and revamp its iBook line-up. Microsoft showed off the latest version of its Office business suite. And many other hardware and software developers demoed new products at the Paris-based Apple Expo Europe in mid-September. It wasn't all smiles at the show, however, as many UK and non-French attendees complained that Apple Expo was "too French" (see page 10).

X-tra OS

Apple had promised to deliver the public beta of its next-generation operating system by "summer 2000". During his keynote address to Apple Expo 2000, CEO Steve Jobs made the announcement while the sun still shone in Paris. "Mac OS X is the future of the Macintosh," Jobs told the French faithful. "The point of Mac OS X is to simplify and make the Macintosh more powerful," he explained.

In respect of OS X's multiprocessing and Java 2 support, Jobs announced: "The Mac now has the underpinnings of a super-modern kernel that makes the Mac super-robust."

OpenGL, Apple's standard for 3D graphics and gaming

is included. The Aqua user-interface has been made adjustable for professional designers – it can be switched to a neutral Graphite-shade with one command.

The Dock has also been revised since the last public demonstration, it can now be set to shrink, or even disappear completely. Additionally, Mac OS X can wake a PowerBook from Sleep mode within one second, according to Apple.

Mac OS X is a bold step – making the operating system more robust, boosting performance, and giving the user interface a fancy new look. It will eventually replace OS 9 as the standard Macintosh operating system – but will not start shipping in its final version until "early next year", according to Apple. What Jobs introduced was the public beta, a work in progress for public and developers alike to test and experiment with.

The OS X beta is available from the online AppleStore (www.apple.com/uk) for £21.23 (£24.95 inc. VAT). It is not a download, however. OS X is shipped on a CD, with a 25-page printed installation guide.

Compatible systems include the iMac, iBook, all G3 and G4 Power Macs (including beige models), G4 Cube,

Apple cancels new Pro Keyboard for old Macs

Apple has confirmed that the Volume Up, Volume Down, Media Eject and Mute keys on its new, 108-key, £39 Pro Keyboard will not work on Macs shipped before July 19, 2000. A late software fix, however, is not fit for public consumption, according to Apple.

The company says that support for the new keys on older USB Macs is not expected until early 2001. The remaining keys work fine on any USB-equipped Mac running Mac OS 9.0.4.

The Pro Keyboard (reviewed, *Macworld*, September 2000) ships as standard with all new desktop Macs, and was also available from the AppleStore. UK customers who pre-ordered the keyboard received an email explaining that their order was cancelled. The new optical Pro Mouse, released with the keyboard, is unaffected and is still on sale.

Disappointed buyers

Graphic designer, Julie Morton, told *Macworld*: "I'd been looking forward to at last getting a full-size Apple keyboard since I read the news from

Macworld Expo, New York. I was really disappointed when the Apple Store just cancelled my order without even asking me whether I wanted those few functions that didn't work."

The full-size Pro Keyboard was announced with fanfare at Macworld Expo, New York.

Apple's Tech Info Library entry now notes the need for an update to enable the new keys on older Macs: "For best performance and compatibility, you should use the keyboard that came with your computer."

Apple has posted a pre-release version of a software fix (for developers only) that will enable the keys for use with older USB Macs, but the fix comes with warnings. It is "pre-release and not directly supported by Apple, nor is it intended for end-users". Apple says that "system software to enable use of the Apple Pro Keyboard with older systems is not expected until early 2001".

The Pro Keyboard – previously priced £39 (£45 inc. VAT) has been withdrawn from sale at the UK online AppleStore. MW



iBooks

and PowerBooks introduced after September 1998. Apple recommends at least 128MB of memory, and Mac OS 9.0.4 is necessary to run today's "Classic" applications.

An important goal for the first version of Mac OS X is for it to run existing Macintosh software well enough that the transition from Mac OS 9 is smooth. However, today's Mac apps – which run under OS X's Classic emulation – won't be capable of taking advantage of new OS X features, such as memory protection and pre-emptive multitasking. To benefit from the more-modern features and the lush new-look Aqua interface, applications must first be optimized for OS X, either through a coding process known as Carbonization or by being rewritten in the new Cocoa language. OS X ships with a Carbonized Internet Explorer 5 from Microsoft, and Stuffit Expander from Aladdin Systems. Apple supplies native versions of Sherlock, and a bunch of new optimized programs such as TextEdit, Address Book and the Mail email client. Third-party software developers are working on optimized versions of most major Mac programs, but these may not surface until the final version release next year (see page 22).

For *Macworld's* full Mac OS X survival guide, see our ten-page feature, starting on page 70.

iBook bonanza

Jobs also used his Paris speech to announce an updated iBook range. Apple has added a FireWire port and AV port to the iBook, and included iMovie 2 software to take simple, powerful video-editing functionality to the consumer portable for the first time.

The iBook Special Edition's speed is boosted to 466MHz (G3). The previous top-of-the-range iBook Graphite SE ran at 366MHz – now the speed of the standard model.

The new iBook SE (£1,499 inc. VAT) now features a DVD drive, and is available in a new Key Lime colour and "refined" Graphite. The standard iBook (£1,249 inc. VAT) is also available in the striking Key Lime, as well as a new deeper Indigo blue. The Key Lime iBooks are available only from the Apple Store. All the iBooks now come with a built-in ATI Rage Mobility 128 graphics-accelerator, 64MB of RAM and a 10GB hard drive. See Reviews, page 46.

Radeon and on and on

Jobs also announced that ATI's 32MB Radeon graphics-accelerator upgrade will be available for Apple's G4 Cube and G4 Power Macs as a £70 build-to-order option from the Apple Store.

ATI claims that the Radeon card is a "quantum step forward in 3D acceleration to support intense and immersive 3D games and the most complex 3D modelling and rendering". Its advanced features – such as hardware support for transformation, clipping, and lighting – mean the card can display "lifelike characters, detailed objects, and lush environments at extremely high resolutions".

The Radeon card comes with 32MB of DDR (Double Data Rate) RAM – which provides up to double the throughput of standard video SDRAM, according to ATI. With a peak bandwidth of 4.8 gigabytes per second, DDR RAM allows the card to handle large texture maps, making 3D games appear extremely realistic. MW

Simon Jary



(Top) iBook ports of call
Even the entry-level iBook now boasts pro-level functionality, with the addition of a FireWire port (3) and an AV port (4) to its already present 10/100BaseT ethernet (1) networking and USB port (2).

(Left) X marks the Q
As soon as the Apple Expo show doors opened after Steve Jobs' Paris keynote address, a huge queue formed to snap up one of the French, German or English versions of the Mac OS X public beta. At one point, waiting time was estimated at a leg-buckling two hours.



News continues page 22



OS X: developers slow to Carbonize



More OS X coverage
on page 20 & 70

With the release of the Mac OS X public beta (see page 20), software developers have begun revising applications for Mac OS X. Few hardware manufacturers, however, will be rewriting peripheral drivers for the beta – preferring to wait for the final, full release of OS X early next year.

Mac OS X offers three environments in which programs can run: Cocoa, Carbon and Classic. Classic exists for non-updated applications, and runs in emulation in OS X. Classic apps therefore operate more slowly than those optimized for the new Mac operating system. Optimized Cocoa and Carbon programs are faster and take advantage of OS X's modern features, such as memory protection and multiprocessing support – as well as featuring the new-look Aqua interface. Carbon is a transition environment

that lets developers easily update current Mac applications to run natively on Mac OS X.

Macromedia has demonstrated development builds of its Fireworks Web-graphics tool and Dreamweaver Web-site editor running in Carbon, as well as demoing Flash Player running on Mac OS X. Macromedia will also support Mac OS X in FreeHand, Director and Shockwave Player.

Carbon waiter

Adobe, like most developers and software companies, has declined to comment as to when its applications will be Carbonized. Nearly all companies are working to release Carbonized versions of their software and drivers, but not for the public beta.

Quark representatives admit that version 5.0 of XPress, due in beta form shortly and expected to ship mid-next year in the UK, will not be Carbonized, though Carbon support will be available as the first upgrade patch to XPress 5.0.

Despite data backup being highly recommended prior to all OS X installations, Retrospect publisher Dantz says that although the company plans to fully support OS X and is making announcements in the future, no Mac OS X releases are imminent.

Driver skivers

Digital-tablet maker Wacom is unlikely to release drivers for the Mac OS X beta release, saying it lacks adequate information to support the level of functionality needed for a tablet driver to roll one out for beta users.

Hewlett-Packard is developing OS X drivers for the final release next year. Until then, you won't be able to use HP ink-jet printers or other peripherals under Mac OS X, which cannot print to non-Postscript printers. Manufacturers, such as Epson and HP, are awaiting the final version of Mac OS X before offering drivers for their machines. The beta prints to network printers and USB PostScript devices.

"Our position is we're not going to officially support the public beta," said Hugh Amick, HP's Mac-connect program manager.

However, HP engineers are working on OS X drivers, he said. "We're printing now under the public beta, but there's a lot of work to be done in the areas of quality, speed and ease of use."

Drivers for individual products could be posted on the Mac-connect section of HP's Web site before OS X's final release. "If our product group makes a driver, and Apple tells us that the operation of the driver won't change under the final version of X, we may post it," he said.

Mac OS X uses a framework called I/OKit to manage low-level access to printers and other peripheral devices. Apple says that I/OKit will ultimately make it easier to develop device drivers, but current Mac drivers won't work with OS X.

Developers with native Mac OS X programs said they were disappointed by the lack of printer driver support in the public beta. "OS X has a wonderful new printing architecture, but it looks like the printer drivers aren't there yet," said Ken Case, director of engineering at the Omni Group. "It would be unfortunate if the printer manufacturers don't put out drivers for the public beta." **David Read, Joe LiPetri, Brett Larson and Mathew Honan**

PowerBook hard-drive boost; iMovie 2 added



Playing it as cool as a Snow iMac, Apple has quietly increased the hard-drive capacity of all its PowerBook laptops and added iMovie 2 to the software bundle, without increasing the portables' pricing. Apple made no announcement of the change at its Apple Expo Paris, and was unavailable for comment on its tactics. It is believed that the change was made to keep the pro laptops in line with the revamped consumer iBooks.

The PowerBook G3/400 MHz model will now have a 10GB Ultra ATA hard drive (in line with the new iBooks) rather than just 6GB. The PowerBook G3/500MHz models will have either 20GB or 30GB hard drives rather than 12GB or 18GB drives. No additional changes have been made to the basic configurations of either PowerBook model, which cost £1,699 (£1,999 inc. VAT) and £2,349 (£2,759 inc. VAT) respectively. Another 500MHz PowerBook model – with the 30GB drive – costs £2,737 (£3,215 inc. VAT), and includes an extra battery and AC adaptor.

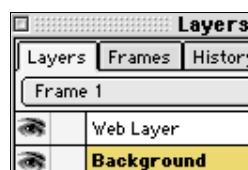
The free iMovie 2 software allows for simple video-editing from digital video camcorders via the PowerBook's FireWire port – see *Macworld's* review, September 2000. Current FireWire-enabled PowerBook owners, can buy iMovie 2 from the AppleStore for £35 (£41 inc. VAT).

The new models are available immediately from the Apple Store.

MW



Palette War: Macromedia on the offensive



Copy and pasting?

Adobe's patented tabbed-palette invention allows users to customize how the functions in the product are organized on the workspace. Here we see tabbed palettes in Adobe's ImageReady (above, top) and Macromedia's Fireworks (above, bottom) applications.

Macromedia is squaring up to Adobe in the war of the tabbed palettes. Following Adobe's legal action versus its graphics and Web rival (see News, Macworld, October 2000), Macromedia has filed a counterclaim against Adobe, alleging that Adobe has infringed three Macromedia-held patents.

The three patents include one (US Patent Number 5,467,443) related to changing blended elements and automatic re-blending of elements – a feature in FreeHand that Macromedia claims is infringed by Adobe's rival vector-graphics program, Illustrator. The other patents (Patent Numbers 5,151,998 and 5,204,969) relate to visually displaying and editing sound waveforms, which Macromedia claims are infringed by Adobe Premiere.

The company filed these claims in direct response to the suit that Adobe filed on August 10, in which it alleges that the tabbed, tear-off palettes in Flash, FreeHand and other Macromedia products infringes on two Adobe patents (US Patent Number 5,546,528 and 6,084,597). Macromedia has demanded a trial before jury, and has also requested an order blocking Adobe's alleged infringement of these three products and unspecified damages for what it calls "wilful" infringement.

Patent abuse

Macromedia noted that Adobe amended its complaint on September 18 to include an additional claim involving image-rendering features in Dreamweaver and Flash.

Macromedia is resolute in its denial of Adobe's claims, and has also provided a direct response to Adobe's original charge. "Macromedia has no choice but to vigorously defend itself against the Adobe lawsuit," said Kevin Lynch, president of Macromedia products.

Tabbed palettes are vital elements within the interfaces of both companies' applications. They provide an easy-to-manage way to access and organize an application's functions, and offer a means by which new features can be added without using too much screen real estate.

Macromedia contends that tabbed palettes existed



before Adobe was granted the patent to them.

The company also believes that the US Patent and Trademark Office should have denied the patent application when it was originally submitted by Adobe in August 1996.

In its defence, Macromedia claims that Adobe "concealed" Apple, Microsoft and Sun's existing technology from the authorities when it applied for the palette patent.

When Adobe originally filed its suit against Macromedia, Adobe's president, Bruce Chizen, said: "Adobe will not be the R&D department for our competitors. Our patent and user interface are central to the user experience. They are essential to differentiate our brand from others."

Macromedia maintains that the legal battle will not affect its core business: "We have the leading products for Web publishing – over 80 per cent of the market use Dreamweaver," claimed Macromedia's CEO, Rob Burgess.

Neither Adobe nor Macromedia representatives were prepared to add further comments as we went to press, as all the litigation awaits judgement by the court. **MW**

Macworld
BEST of SHOW

The Expo London 2000

Quark wraps up 3D

QuarkWrapture helps designers by fusing their packaging designs to a CAD (Computer Assisted Design) structure, so that it's possible to develop and design packaging for consumer products more quickly and cheaply, according to developer Quark.

Jurgen Kurz, director of product management at Quark, said: "QuarkWrapture cuts the costs involved in package production, speeding up every step of that process."

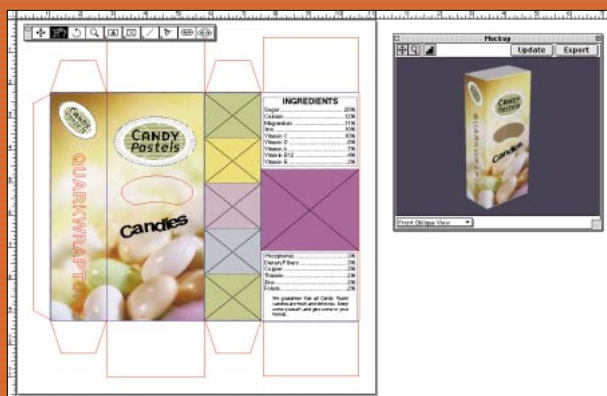
"You don't have to ship cut-&-paste mock-ups to different locations for approval. It lets you

create, distribute and view 3D proofs immediately."

Wrapture's guides run at any angle, rather than just horizontally and vertically. Creases as well as cuts can be marked-up. The new software generates 3D renderings of 2D package designs. Design changes are seen instantaneously, with electronic mock-ups exported in JPEG or QuickTime VR format.

A demo of QuarkWrapture is available from www.quark.co.uk. It will also be included (with tutorial) on December's Macworld CD.

The design, typography, and output features are evolved versions



of Quark's existing XPress DTP page-layout technology, but the 3D-rendering tool that allows designers and clients to review projects

quickly on-screen is entirely new. QuarkWrapture will be available in the UK in November. Pricing has not yet been set. **MW**



Expo favourites honoured

While not being as pan-European as Apple hoped, the Paris-based Apple Expo 2000 has certainly seen some significant announcements and first showings of key Macintosh products – not least from Apple, which rarely announces new products outside of the US. *Macworld* scoured the show floor for those products that we saw as the 'Best of Show'.

Mac OS X Public Beta Apple itself announced the release of the Mac OS X Public Beta. This working version of the next-generation of the Mac operating system is not the finished article – but those of us waiting for years for a more modern Mac OS will eagerly install the new-look and re-architected OS X to get a feel for the future. Sadly, it's not free (you'll have to fork out £25 via the online AppleStore), but this won't put off Mac enthusiasts and professionals alike. For more, see page 20, and the feature starting on page 70.

iBook Apple also upgraded its range of portable consumer Macs. All today's iBooks now include a FireWire port, video output to TV through AV port and iMovie 2 video-editing software. There's two new colours as well – Indigo blue and a vivid, fluorescent Key Lime – and even the Graphite Special Edition has snowier white case elements. Standard PowerPC G3 speed is increased to 366MHz, while the SE now reaches 466MHz. For more, see Reviews, page 46.

Office 2001 Microsoft announced an October 13 release date for its totally revamped suite of business applications, Office 2001 (£429 inc. VAT). Word, Excel and PowerPoint are joined by a new personal-information manager, Entourage. It comes in a funky CD carrier, as well. For more, see Reviews, page 51; and the feature in September's *Macworld*.

Photoshop 6.0 Adobe has been showing off the next version of its market-leading image editor, Photoshop 6.0. For £399 (ex. VAT), it offers a host of new features, including a liberated Layers palette and vector-like text effects. For more, see the feature in October's *Macworld*.

GoLive 5.0 Adobe has also upgraded its Web editor, GoLive. Version 5.0 (£199 ex. VAT) certainly gives Macromedia's Dreamweaver a run for its Internet money. Much has changed since Adobe released version 4.0, and Adobe has added over 100 new features. For more, see Reviews in October's *Macworld*.

Flash 5 Macromedia, meanwhile makes authoring high-impact content even easier. New and improved features make content creation more intuitive, and the revamped

user interface is also a major plus point (but don't mention this to Adobe's legal department). Bezier drawing tools and FreeHand import are also useful. Flash 5's intuitive authoring environment lets designers and developers more easily create next-generation Web sites and applications. For more, see the feature in October's *Macworld*.

Business Inkjet 2250TN Hewlett-Packard's latest colour printer is aimed at budget-conscious offices and studios looking for a replacement for a mono laser while adding colour features. High print speeds, PostScript emulation and robust network features offer easy connectivity and manageable workgroup printing. The expandable Business Inkjet 2250TN is a real alternative to more expensive colour laser printers.

NetStation Xircom's NetStation makes networking small, mobile workgroups as easy as pulling out the retractable cable and logging on. When your meeting is over, you can simply unplug your PowerBook and retract the cables to keep the room neat and tidy – you can forget messy cable spaghetti after users pack-up and go home. A single ethernet connection is all that's needed to network multiple users. For more, see page 35.

PL-500 Interactive Pen Display Wacom showed off the latest version of its innovative Interactive Pen Display, the 15.1-inch PL-500 (£2,190 ex. VAT). This fully integrated graphics tablet is also a sharp 1,024-x-768-pixel LCD monitor. Users can sketch, draw and write directly onto the surface of the 24-bit colour display. Even Apple's optical mouse is irrelevant – with Wacom's excellent pressure- and tilt-sensitive pen. For more, see page 35.

9.4GB FireWire DVD-RAM LaCie's latest DVD-RAM recorder (from £529 ex. VAT) allows you to squeeze 4.7GB of data on each side of a DVD disc. This doubles the previous capacity of DVD-RAM, already one of the cheapest ways to archive data. FireWire connectivity makes it bang up to date for the latest Macs and Mac OS X. **Director's Cut** Apple's iMovie has revolutionized consumer-level desktop video. But iMac and now iBook owners had to splash out hundreds of pounds on FireWire In & Out digital camcorders. And owners of old analogue camcorders have been left high and dry. Director's Cut by PowerR is the solution many have been waiting for – an analogue DV converter for desktop video editing. Director's Cut connects any analogue video equipment – VHS, Hi8, 8mm – to the FireWire port of your Macintosh.

MW



Le grand buzz of Paris

Predictably, the huge Apple and Microsoft stands received a lot of attention during September's five-day Apple Expo in Paris.

The Expo 2000, London

Although Apple boycotted the UK's only Mac-specific show – held in London at the end of September – there were UK-first demos of the recently released public



beta of Mac OS X – as well as iMovie 2 video-editing software. There was also a demo of Adobe's forthcoming Photoshop 6.0 upgrade, despite Adobe's decision to follow Apple to its French-biased Apple Expo Europe in Paris. Microsoft exhibited in Paris – but employed only French-speaking staff on its stand there. The company also attended The Expo 2000 in London, showing off Office 2001.

QuarkWrapture Best-known for its XPress DTP page-layout program, Quark is expanding its software portfolio with QuarkWrapture – its attempt to help streamline the 3D package design workflow. For more, see page 24.

Farallon NetLINE The NetLINE Broadband Gateway allows you to share a broadband Internet connection, such as a cable or ADSL modem, with multiple users on your network. Connecting between your existing network and cable/ADSL modem, NetLINE allows you to share a single IP address from your ISP with all the computers on your network.

Hermstedt Angelo The £2,750 (ex. VAT) Hermstedt Angelo offers 30 ISDN B channels on a short PCI card. All channels can be accessed through a single telephone number.

Angelo makes it possible to bundle up to 30 channels for a maximum throughput of 1,920kbit/s.

Newer iMaxpowr G4 This processor upgrade takes any iMac up to the 333MHz G3 Rev D fruity flavours to an astonishing 433MHz G4. Newer Technology claims that installation nearly doubles the speed of the original iMac. See page 60. **Heidelberg Linoscan F2400 XL** This A3 scanner sports a 42-bit colour depth with a 3.7D range. In high-resolution mode it can scan up to 800-x-2,400dpi. For more, see Test Centre, *Macworld*, October 2000.



FireWire vs USB 2.0

Are FireWire and USB 2.0 in competition to become the primary protocol for connecting computer peripherals? "Absolutely," according to analyst Robyn Bergeron of Cahners In-Stat Group, whose new report, *USB: Quest for a 'Universal' PC Connection*, predicts that USB 2.0 devices will far outnumber FireWire devices by 2004. However, a spokesman for the 1394 Trade Association, the group responsible for maintaining the FireWire standard, said that the numbers are distorted due to the large number of cheap USB input devices, and that USB 2.0 – a higher-speed version of the current USB 1.1 spec – will be slower to catch on than its proponents believe.

In-Stat predicts that there will be 609 million USB peripherals, almost 39 per cent of which will use USB 2.0. FireWire – developed and heavily promoted by Apple – will be included in only 112 million peripherals by then, the report said. Bergeron said that USB 2.0 will benefit from the widespread adoption of USB 1.1 on PCs.

'Skewed' statistics

However, Dick Davies of the 1394 Trade Association says that the large number of low-end USB input devices, such as keyboards and mice, skews the statistics in USB's favour. FireWire's appeal is stronger for high-bandwidth peripheral products, such as DV cameras, storage and scanners.

USB 1.1 – used on Macs and many PCs – has max throughput of 1.5MB/sec; USB 2.0 claims a max throughput of 60MB/sec, and is backward-compatible with USB 1.1. The current FireWire version has a maximum throughput of 50MB/sec, but the second generation, 1394b, is expected to reach transfer speeds of 100MB/sec.

Art Scotten, president of Orange Micro, expects to release a Mac-compatible USB 2.0 PCI board in October.



Scotten and Bergeron both expect USB 2.0-based devices to be available by the end of this year.

Davies believes that USB 2.0 will be slower to market than its proponents claim. "I think that USB 2.0 still has several problems – most notably that the hub technology and topology are not consumer friendly," he said.

Unlike USB, FireWire does not require a CPU on one end of the connection. For example, you can theoretically connect a FireWire hard drive to a digital-video camera. FireWire devices are daisy-chainable, whereas multiple USB devices require the use of hubs. And although USB 2.0 is backward-compatible with version 1.1, its speed enhancements are lost when you put a USB 1.1 device on a USB 2.0 controller, which must ramp down to USB 1.1 speeds.

"The 1394 Trade Association Board is not comfortable with being in a niche market," said Davies. Users can now choose from FireWire camcorders, storage devices, scanners and network hardware. The next battleground, he says, will be printers.

David Read

▶ *FireWire drives, page 93*

... and then there's Serial ATA

Parallel ATA, the standard for connecting internal hard drives to Macs and PCs, is to give way to Serial ATA, a new version of the specification that offers faster throughput to enable future generations of speedier drives. With a maximum transfer rate of 150MB per second, the prototype more than doubles the top transfer rate of the ATA/66 protocol used in Apple's current Power Macs, and exceeds the capabilities of ATA/100 adaptors on currently available PCs.

Apple declined to comment on any plans to implement Serial ATA in future Macs, and is not involved in the Serial ATA Working Group, which includes every major hard-drive manufacturer and most major PC makers. However, making the move would be simple, and the current ATA/66 interface can keep up with any single drive currently in general production.

Serial ATA is not meant as a competitor to USB 2.0 or Apple's FireWire (IEEE 1394). However, it's interesting to note that Apple's latest Power Mac G4 systems lack the internal

FireWire connector that was included in previous models. Like FireWire and USB, Serial ATA devices are hot pluggable, but other factors make it unsuitable for connecting external devices.

Drive development is relentless – mechanisms are exceeding ATA/33's throughput capabilities and are beginning to tax ATA/66. Moving the standard to the next level ATA/133 would be a difficult and expensive proposition.

The Serial ATA Working Group is charged with creating a specification that will have a lifespan equivalent to parallel ATA's of at least ten years. "Disks double in performance every two years, and Serial ATA is always expected to be superior," said Knut Grimsrud, senior staff systems architect at Intel. He expects the first commercially available serial ATA products in late 2001, with broad adoption in 2002.

Serial ATA will begin with a throughput of 150MB per second, but Grimsrud said the next generation will double that to 300MB, followed by a 600MB implementation.



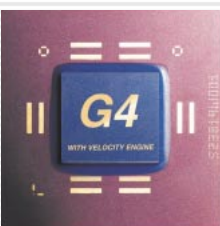
The new spec uses a seven-pin connector that will look somewhat like a USB connector. One side-benefit of Serial ATA's smaller form factor is improved airflow inside the computer, because it eliminates the wide ribbons of parallel ATA. Serial ATA controllers will first be implemented on PCI boards and then on the motherboards of new systems. The manufacturer will determine the number of devices that a host can support; the ATA/66 controller in Apple's Mac systems supports up to four devices. **David Read**

FIREWIRE ILLUSTRATION BY GEORGINA WATSON. ATA BY MANDIE JOHNSON.



Apple hits Euro teachers with

Motorola's new G4 chip



Motorola has announced the next version of the G4 processor, the MPC7410.

The 7410 is available now at 400MHz, 450MHz and 500MHz, with a 550MHz version available soon. It is Motorola's first chip to use a new 0.18 micron copper fabrication process, which allows the 7410 to be about half the size of the 7400. It also runs cooler and uses less power than a 7400 – the G4 chip currently used in Power Mac systems.

Motorola designed the 7410 for use in the embedded market, but it could easily be used in a desktop implementation. It retains the connections necessary for Symmetric Multiprocessing (SMP) and supports 512K, 1MB, and 2MB L2 cache sizes. The 64-bit 7410 has a 128-bit AltiVec execution unit built-in.

A 500MHz 7410 will offer performance similar to that of a 500MHz 7400, but with power consumption equivalent to that of a 400MHz G4.

Motorola has also revealed that the G4 will move to a 0.15 micron copper process that will eventually integrate Silicon-On-Insulator (SOI) technology. This will allow processor speeds of up to 1GHz. David Read

Brendan O'Sullivan, Apple UK's acting managing director, has become Apple's new director for education, Europe. Brit Mark Rogers, returning from Apple's Asia-Pacific region, succeeds him. O'Sullivan will bring successful US Apple educational strategies to Europe and leverage the pulling power of iMacs, iBooks, iMovie and even Mac OS X.

Education is a key market for Apple. In the US, the company is the sector's number one supplier. But in the UK, it holds just 4-7 per cent of the market. *Macworld* met with O'Sullivan to discuss Apple's newly focused strategy for education, and what the company can bring to it.

It's a huge market. Apple's research shows a staggering 50 million students across Europe. O'Sullivan believes this market is ripe for Apple's new technologies. "We have fantastic technologies, from iMacs to multiprocessing Power Macs. We believe iBooks are fantastic for colleges"

In the first quarter of 2000, Apple accounted for 26 per cent of the US education market; with 14 per cent world-wide. IDC's Andy Brown reports that Apple has captured 6-7 per cent of Europe's education market – seventh place overall.

Business school

"Aggressive bundling, pricing and good relationships with local authorities are crucial," according to Brown.

"It's a complex market. Local players vary from country to country, and region to region," O'Sullivan said. "There are many differences within the education markets of Europe. It's not merely a multiplicity of languages. Primary schools have different needs from secondary schools, and higher education has different needs again."

"In the UK, we have independent schools with different requirements from other schools. We have special-needs schools, with different requirements. In the UK, an additional 250,000 pupils learn without attending school – kids in hospital, on remand, or children of parents opting to teach their youngsters at home. There's also a project running in the UK called notschool.com, where pupils can learn over the Web without attending school."

"We are getting feedback from education groups in different countries, and already have a business plan for this. It's ready to roll."

O'Sullivan has a long history with Apple, and within the education market. "I've been with Apple for about 15 years. I was in Apple Ireland for many years. In 1996 I came over from Ireland to launch and become managing director of Xemplar [Apple's 50 per cent-owned company with Acorn that concentrated on education]. We spent years building this, and reached number two in the UK education market."

In January 1999, Apple bought out Acorn's share in Xemplar – and later wound the company back within the Apple fold.

IDC's Brown revealed that Apple stood in fourth position for sales into the UK education sector. It stands fifth in both Italy and France, and is eighth in Germany.

The analyst was optimistic about Apple's future: "They are in a good position. They have great technologies – for example, no one else offers wireless-network-ready machines, such as the AirPort-capable iBook."



Under O'Sullivan's direction, Apple has developed its overall UK share from 4 per cent in the first quarter 1998 to 7 per cent in the second quarter of this year, according to analysts. His outlook is optimistic for Apple: "Expect to see this improve by up to 2 per cent over the next couple of quarters."

The company's new strategy builds on the lessons acquired following years of dominance in the US market. "Apple is number one in US education, and has been for 20 years. The position has not been held by complacency. We've done a consistent job over many years in the US market with online-learning areas and training."

"What we need to do in Europe is to deploy the same system on a country-by-country basis – we have an engine and the experience from the US to apply on a local level."

Technical college

O'Sullivan sees the opportunities for Apple, focused particularly around the concept of "Look what the technology can do for you."

"We are uniquely positioned with iMovie. Government and education policy-makers understand that we need English and maths, but increasingly they are focusing on the need to produce people who can create new ideas and innovations – a shift from a manufacturing base to a knowledge-based economy."

Education is making a paradigm shift to produce people with a whole new skill-set. "We need a knowledge-based, creative economy. It's a fundamental change in thinking, and it's a powerful force in education. iMovie is a great tool to help teachers and kids create, communicate and innovate in a medium they take to like ducks to water. For my generation, it was books. For today's kids, it's television and video that are becoming the needs of the modern generation. My job is to let the education community in Europe know that iMovie can transform the way children learn," he explained.

O'Sullivan also revealed a new weapon in Apple's educational armoury. Apple will aggressively leverage the compatibility of Mac OS X's Unix base. "We are also working to ensure that our products are Linux-friendly. We produce fantastic multiprocessing G4 Power Macs that can run Mac OS, but we recognize the need to live in harmony with other operating environments. We also

US strategy

recognize that Linux is emerging, and the Power Mac G4 is a great Linux machine."

Another government initiative for IT in education is the managed services in schools program. This scheme recognized that many schools had the equipment, but lacked the expertise to run it. The solution is that approved companies install, set-up, maintain and trouble-shoot computer systems in schools for a rental fee over a fixed period. Apple was one of 12 companies selected as managed service providers.

Finally, O'Sullivan talked about some of the initiatives the company is already involved in. "In Belgium, we are involved in the Cyber-ecole project. 10,000 Macs were bought for 3,000 schools. We have trained thousands of teachers. It's run like managed services in the UK."

Closer to home, in the Isle of Man, the education authority has recently engaged in a massive project. "The island recently purchased computers for all its teachers – 600 PowerBooks, all on a wireless network, plus hundreds of iMacs for the kids. All the schools in the Isle of Man are now on a wireless network," said O'Sullivan.

"I really believe that Apple is tremendously positioned with what it's doing to provide a great service. We've never had a stronger story to tell," O'Sullivan claims.

Apple has dedicated resources and information for



IMAGE COURTESY OF WWW.CADMIUM.CO.UK (DIGITAL VISION)

educators at www.apple.com/uk/education. The company offers substantial discounts for sales into the sector.

Of his successor as new UK boss, Mark Rogers, O'Sullivan says: "He's very strong, with excellent business acumen and sales experience. He's fantastic and creative. I personally believe Apple UK will go from strength to strength with him. He really values people." MW
Jonny Evans

AppleStore push with just one mouse click

Buy now with 1-Click



Apple has licensed Amazon's 1-Click technology for use by the company at its online AppleStore. Despite some legal controversy surrounding Amazon's patent for this technology, it forms a key part of Apple's new sales strategy.

1-Click is an online-shopping solution, developed by Amazon for use on its online stores. It lets customers returning to the online store complete a purchase with a single click. Credit-card and billing information need be entered during the first purchase only – when prospective customers are asked to fill out a secured customer profile.

On subsequent visits, customers can make use of the "Buy with 1-Click" button that appears on most product pages. These profiles can be changed at any time. When an order is placed, customers have 90 minutes to cancel or modify it before the order is processed.

Mitch Mandich, Apple's senior vice president of worldwide sales, revealed that Apple's online store accounts for 25 per cent of the company's revenues. With the launch of Key Lime iBooks and the 500MHz Power Mac G4 Cube (both available only from the AppleStore), Apple is clearly focused on increasing its revenues from its virtual storefront.

Click trick

Apple has already updated its UK AppleStore to feature the newly licensed technology, and made iMovie 2 available immediately from there at £35. This is the first time Amazon's 1-Click solution has been used to enable an Internet-based download of a software product.

Steve Jobs said: "The AppleStore has been incredibly successful and now we're taking it to the next level. Licensing Amazon.com's 1-Click patent and trademark will allow us

to offer our customers an even easier and faster online buying experience."

Neither Apple nor Amazon would discuss the terms of the transaction, but a press release describes it as "part of an e-commerce patent cross-licensing agreement".

Amazon's 1-Click patent has raised controversy among critics of the US patenting system, who maintain that the company should not have received intellectual property protection for what Tim O'Reilly (of O'Reilly & Associates) calls a "completely trivial application of cookies".

Answering these critics, Amazon's CEO Jeff Bezos wrote an open letter calling for changes to the patent laws. At the time he told Associated Press that Amazon would retain the patent, but would enforce it only "when there are important business reasons for doing so".

Amazon has won a preliminary



One click, one place of purchase
Apple's 500MHz G4 Cube is available only from the company's online AppleStore.

injunction against Barnes and Noble in the US courts over its use of a very similar technology, which Amazon claims is copied from its own solution. MW



Apple's \$8bn stock crash, despite \$110m profit



Apple's market capitalization took a hammering, after the company warned it expects to return substantially lower fourth-quarter profits than anticipated.

Apple's shares stand at \$25.75 at the time of writing – a 52 per cent decline from the previous day's price of \$53.50. By the end of trading on September 29 Apple had lost over \$8 billion of its market capitalization, which now stands at \$8.37 billion.

Apple expects its fourth-quarter earnings to be \$110 million, down from the previous forecast of \$165 million. The company now expects to report revenues of \$1.85-1.9 billion, excluding investment gains. Apple will announce its results on October 18 (see www.macworld.co.uk).

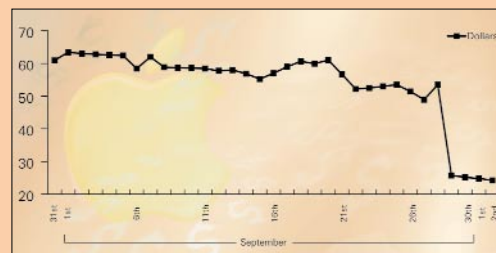
Apple's CFO Fred Anderson cited three factors behind the reduced earnings: lower-than-expected September sales, due to a "business slowdown in all geographies"; lower-than-expected education sales; and slower-than-expected sales of the G4 Cube.

Anderson said: "We are currently re-evaluating our plans going forward, and will provide lower growth targets for next quarter and the next fiscal year when we announce our final results."

Apple CEO Steve Jobs called the announcement a "speedbump". This "bump" trashed Apple's market value, and seriously challenged investor confidence in the company – after two years of building investor-relationships, according to observers.

Jobs said: "Though this slowdown is disappointing, we have so many wonderful new products and programs in the pipeline, and we remain positive about our future."

Analysts Salomon Smith Barney, Merrill Lynch, Morgan Stanley, and Dean Witter all downgraded Apple's stock



from "buy" to "neutral" after hearing the news.

Despite the loss of confidence on the part of major investors, the Apple faithful are bouncing back to point out that the company is still set to return another positive quarter. Independent observers say that to lose such a monstrous amount of market capitalization on the strength of what is still a profitable quarter is unfair.

A Paine Webber analyst said that the sales shortfall could be a sign of overall softening of consumer PC demand, or that Apple's comeback is over. He said: "We are casting our vote that this problem is unique to Apple."

Tim Bajarin, industry analyst with Creative Strategies, said that Apple will rebound during Christmas, due to strong iMac sales. He wasn't so sure about momentum for the Cube, but attributed Apple's woes to a product transition. To Bajarin, the quarter was "a bit of a blip".

Ruth Carpenter, senior analyst at IDC, said: "This is traditionally a very slow quarter in the PC industry. Apple's last quarter [Q3] was particularly good in terms of consumer sales. We were expecting a poor third quarter, but the industry as a whole benefited from increased consumer shipments."

However, Apple's announcement has made investors nervous and helped fuel a general decline in tech stocks. PC manufacturers Dell, Gateway and Compaq all saw their stock value fall.

Brad Gibson contributed to this report

MW

Adobe reports profits, as Corel loses loom

Graphics giants Adobe and Corel have both released third-quarter earnings figures in the past month.

Adobe exceeded analysts' expectations, with better-than-expected net earnings of \$78.3 million. Adobe used the news to set the stage for a two-for-one stock split. The company's third-quarter revenues were \$328.9 million, a 26 per cent rise against the company's earnings in the previous quarter – which the company claim resulted from increased sales of its Web-publishing solutions. Adobe announced that it's targeting year-on-year growth of at least 25 per cent for 2001.

Adobe's CEO John Warnock said: "The Web is creating explosive demand for content and our third-quarter results show that Adobe is in an exceptionally strong position to capitalize on this trend."

Corel's shares rose slightly in response to the company's announced net loss of \$10.7 million in its third quarter. While disappointing, the losses covered a period in which the company has been engaged in a major program of cost reduction and staff cuts – severance pay cost \$2.5 million. Revenues for the third quarter were \$36.4 million – showing an improvement on the second quarter of 2000.

John Blaine, Corel's chief financial officer, said: "Our third-quarter results demonstrate that our previously announced cost-restructuring plan is already making an impact on our bottom line, and we continue to make progress towards putting the company on a more solid financial footing."

MW

Business briefs

- Microsoft has purchased 24 million shares (worth \$135 million) in Corel. The partnership is designed to focus on Microsoft's .NET initiative. Microsoft has gained no voting privileges in Corel.
- Infowave Imaging has been purchased by Software 2000 to form Strydent Software, which will focus on PowerPrint, StyleScript and develop new Macintosh products.
- The European Union has confirmed its receipt of revised proposals from AOL and Time Warner, designed to help the EU to grant permission for the merger to go-ahead. Concerns over the power the merged companies will have left the deal in doubt.
- AltaVista has laid off 25 per cent of its 900-strong workforce. The company is quitting the Internet-portal business in order to focus its efforts on its search-engine operations.
- Constellation 3D (C3D), the company responsible for developing new high-capacity Fluorescent Multilayer storage disc technologies, has secured a \$6 million line of credit.



See 'Macworld' – inside 'Serious Software' – on this month's cover CD

Product News

Monitor-tablet Wacom combo

Macworld
BEST of SHOW

Apple Expo Paris 2000

Wacom has launched the PL-500 interactive LCD-monitor and graphics tablet. The PL-500 works through instructions being transmitted to the computer with pin-point accuracy by a wireless "pen" directly through the scratch-resistant tablet – meaning there's no need for a mouse.

It offers a 1,024-x-768-pixel XGA resolution with 24-bit colour depth (16.7 million colours) on a 15.1-inch, TFT active-matrix LCD-display.

The monitor has two output cables – one connects through a digital graphics-card with a DVI connection, and the other via a USB port. Both connections are required in order for the device to operate. The tablet comes bundled with Corel's Painter Classic, which includes

over 100 pressure-sensitive tools.

The pen is both pressure and tilt sensitive and boasts a built-in eraser tool, as well as two built-in side switches. These can be programmed to perform a variety of functions, and can also act as mouse buttons.

The minimum setup required by the PL-500 is a USB Mac with a digital graphics-card running Mac OS 8.5.1 or higher. Available now, Wacom's PL-500 costs £2,190.

Computers Unlimited, 020 8358 5857



Visual input

Wacom's all-in-one monitor and input tablet features a touchscreen and a pressure-sensitive pen.

Networking on the go

Xircom's NetStation is a portable ethernet-hub for laptops. It features retractable ethernet cables housed in a lightweight unit. It's easy to set-up, and users can exchange files over a network in seconds, according to Xircom.

NetStation is available in four- and eight-port models – it's also possible to daisy-chain up to three NetStations, creating a mobile network for up to 24 users.

It can be switched automatically or manually between 10Mbps and 100Mbps ethernet. The NetStation 8100 and 4100 are available now. Xircom will also introduce wireless NetStations. The 8100 eight-port Conference Room switch is £540, and the NetStation 4100 four-port Conference Room Switch costs £340.

Xircom UK, 01256 332 552



Share option

The NetStation won a Best of Show award at last month's Apple Expo, Paris.

Business projection

Toshiba has launched the TLP-B2, a compact portable projector. It weighs 2.6Kg, and uses the latest LCD technology to offer images with an XGA resolution of 1,024-x-768 pixels. It also offers compressed-SXGA display capabilities, and an initial brightness of 1,000 ANSI Lumens. Lamps last up to 2,000 hours.

It can take input direct from a Mac or PC, can project DVD player and VCR signals and offers digital keystone correction, manual zoom and manual focus. It offers 16.7 million colours at a contrast ratio of 400:1. The TLP-B2 is compatible with PAL, NTSC and SECAM video-formats. It costs £3,700.

Toshiba, 01932 828 828



Light up

The TLP-B2 can project from computers and TVs, as well as video and DVD players.

Portable hub

Belkin has released the cross-platform USB Pocket Hub for laptops. It lets laptop users instantly connect USB devices to laptops, with no need to restart the computer. It has a built-in cable-management system, and can host up to four devices simultaneously. It's lightweight, and has swappable sleeves, so the device can match the colour of your Mac. The USB Pocket Hub costs £34. Belkin, 01604 678 300



Digital sound

Logitech has released two speaker systems – the SoundMan S-20 and SoundMan S-4. The £39 S-20 is a three-piece digital-speaker system, featuring the SoundTouch remote control. The system is fully compatible with any portable music-player. For £19, the SoundMan S-4 offers stereo speakers and external volume-control. The speakers come bundled with a CD of MP3 tracks. Logitech, 01753 870 900

Connection card

Evergreen has launched the FireLINE Combo card. It has one internal and three external FireWire connectors, plus two external USB connectors on one PCI card. It's hot-swappable, and costs £99. It comes with one FireWire cable, a video adaptor cable and software drivers. Evergreen, 01793 601 300



Global time keeper

Time Palette 4.0.3, the world-time tool, is available now. It displays the local time for any location in the world and can draw sun-shaded maps of the Earth. It's designed to help international travellers and global business-communications. It also supports alarms in any time zone, and features GPS integration. A single-user licence is \$25. An upgrade for users of version 4 costs \$12.50. Time Palette, www.timepalette.com



continues page 36

Apple updates

Apple has released three major International English updates in recent weeks.



The iMovie 2.0.1 update offers more stability and better performance, and supports the International English version of Apple's iMovie Plug-in Pack 2.

The USB Adaptor Card Support Extension supports cards installed in the PCI bus or CardBus slots on older Macs. It supports only USB cards that comply with the Open Host Controller Interface (OHCI).

Finally, Apple has released its WebObjects 4.5 updater, which it recommends all WebObjects users install. It offers password protection on the event-logging set-up and statistics pages, and makes the application more stable.

Apple has a policy of not granting third parties, such as *Macworld*, the rights to carry Apple updates on Cover CDs. Go to www.macworld.co.uk/updates for direct links to all the updates mentioned here.

Third-party updates

Digital Performer 2.71 This is a maintenance update to Digital Performer 2.7, the digital-audio and MIDI-sequencing production tool. **EditDV Multiprocessor codec** This update is for Apple multiprocessor G4 Power Macs. It replaces the Mac EditDV 2.0 codec with a multiprocessor-optimized release. It works only with EditDV 1.6 or later.

MacLinkPlus Translators 12.001 DataViz's update for current MacLink Plus 12 fixes a crash when doing a certain type of spreadsheet translation through Macintosh Easy Open, when running Mac OS 8.1 **MOTU Audio System 2.1.1** This updates Mark of the Unicorn's MOTU audio system. **Nav 5.0/6.0 updates and Virex Virus Definitions** The newest virus definitions from McAfee and Symantec – recommended for keeping any Mac safe from Virus harm.



STONE/P. GROWTH

Down to business

Stone has unleashed its new image collection, O2, featuring 1,600 images depicting lifestyle and business. More images from this collection can be viewed online. Stone is now a brand of Gettyimages. Pricing is individually assessed on a per-image, per-use basis. **Stone, www.tonystone.co.uk**

FileMaker in Palm move

Apple subsidiary FileMaker has launched FileMaker Mobile, which enables the exchange and synchronization of FileMaker 5 data between FileMaker Pro databases and Palm OS handhelds (right).

FileMaker data is selected and loaded from the desktop to the Palm. The data can then be re-synched via Palm's HotSync technology with the original database, so updated information can be returned to the database by the mobile unit. The FileMaker user can choose which fields are transferred. No programming skills are required.

FileMaker has developed a completely new architecture for the app, and plans to extend this to provide a means of transferring FileMaker data to other handheld devices – which could include Pocket PC, Epoch or Symbian handhelds. WAP support is also planned in future software solutions. FileMaker Mobile costs £79, and will be released this winter.

FileMaker, 0845 603 9100



Rank and file
FileMaker 5 data can be synchronized between FileMaker Pro databases and Palm OS handhelds – thanks to FileMaker Mobile.

Kodak's digital duo

Kodak has released the Professional RFS 3600 35mm film scanner and the DCS Pro Back Camera. The portable RFS 3600 Scanner has a resolution of 3,600dpi.

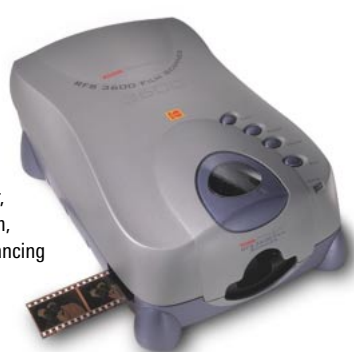
It delivers digital scans from 35mm colour reversal slides, as well as colour and black-&-white negatives, and is capable of creating 50MB RGB scans in under two minutes.

For a limited period, Adobe Photoshop 5.0 Lite ships free with the RFS 3600 scanner, as do ten rolls of Kodak Professional Supra 400 colour-negative film. Other features include batch scanning for up to 36 frames.

The new Professional DCS Pro Back is a 16-megapixel medium-format camera-back that creates 48MB image files. Available next year, it includes an LCD screen, a histogram, software and other performance-enhancing features.

It can capture an image every two seconds and store up to eight. The RFS 3600 scanner costs £899. Prices for the DCS Pro Back will be available in 2001.

Kodak, 01442 845 753



Film Star
The Professional RFS 3600 has a resolution of 3,600dpi.

Canon BJC-55 infrared printer 'truly portable'

The Canon BJC-55 is a USB and IrDA-ready, portable colour-printer for laptops. It prints at up to five pages per minute (5ppm) mono and 2ppm colour. Fast IrDA support allows data to be transferred via infrared, at

speeds comparable to conventional Parallel cable links, according to the company. Available from November, the BJC-55 costs £269. **Canon, 01216 808 062**

Terran Interactive in clean sweep

Media 100 subsidiary Terran Interactive has announced Cleaner 5, its complete camera-to-Web streaming-media solution.

Cleaner 5 lets designers embed interactive, multidimensional instructions directly into streaming-media content to help create interactive Internet-video programs.

The software operates using four main steps: Capture; Author; Encode and Publish. This means filmmakers can capture an image, edit and encode it, and then publish direct to the Web.

Cleaner 5 can import from any DV camcorder. The application integrates seamlessly with Media 100i, iFinish and Adobe Premiere and Apple's Final Cut Pro.

The application makes use of EventStream technology, which lets designers create streaming media that can control the elements of a Web site.

Cleaner 5 supports all the major streaming formats, including RealSystem, Windows Media, QuickTime, MP3, AVI, MPEG-1 and MPEG-2.

It can also publish finished content directly to a Web server from within the application. It costs £399.

Terran has also announced Cleaner MPEG Charger and Cleaner MPEG SuperCharger, which let Web designers produce DVD-video content straight out of



the box. Designed as plug-ins to Cleaner 5, the programs provide optimized media-encoding options for DVD, Video CD, CD-ROM and digital broadcasting.

Charger (£339) is a software-based MPEG-encoding plug-in for Cleaner 5. It offers MPEG-2 control, and enhanced MPEG-1 support, including variable bit-rate encoding. It can also export directly from many popular video-editing systems.

SuperCharger (£699) is a hardware-accelerated MPEG solution for Cleaner 5. It uses technology developed by another Media 100 subsidiary, Wired, for faster MPEG-2 recording. The product's MPEG-encoding is accelerated by a bundled PCI board. SuperCharger offers all the facilities of Charger (see above).

Computers Unlimited, 020 8358 5857



Cleaner environment
Terran's Cleaner 5 can capture, author, encode and publish streaming-media content from within one application.



All-in-one HP printers

Hewlett-Packard has announced the OfficeJet G series of all-in-one printers.

The series can scan at 600-x-3,600dpi, copy in black-&-white at 12 copies per minute, and colour at nine copies per minute, as well as fax documents.

The OfficeJet G series is available in two models. The G55 costs £255. The £385 G85 includes a 30-page document feeder and optional two-sided printing. **Hewlett-Packard, 08705 474 747**

Iiyama FST warms up

Iiyama has announced its new 19-inch monitor, the S900MT1. It's an FST monitor, with a maximum horizontal-scanning frequency of 96KHz and a 200MHz bandwidth. It also offers a flicker-free resolution of 1,600-x-1,200 pixels at 76Hz.

It's compatible with TCO-99 regulations and has an extensive user-menu, including full geometric and moiré controls, to enhance straight edges and picture size.

Priced at £209, the S900MT1 comes with a three-year on-site warranty as standard. **Iiyama, 01438 745 482**



Calculator utility

UK-based Eyecatcher Productions has released version 1.1.0 of iMalc, its scientific calculator for the Macintosh. The calculator offers colours to match your flavour of Mac. It replaces the standard Apple calculator and offers 18 scientific calculator functions, including sine and logarithm. It costs \$15; registration includes all future upgrades. **Eyecatcher, www.tsperencer.diron.co.uk/eyecatcher**



DVD-RAM writer

Mac and More has announced its 4.7GB DVD-RAM drive. The product, part of the Box Clever product family, is the first in the line to fully support DVD-RAM drives. It can handle both caddy and caddy-less DVD-RAM discs, DVDs and various CD media – including double-sided DVD-RAM discs. It costs £449. Mac and More suggests that DVD-RAM TuneUp is used with the drive to set-up the media, and read-&-write to DVD-RAM drives. **Mac and More, 01442 870 300**



News on demand

Aladdin Systems' IntelliNews 3.0 lets users browse through headlines from a number of Internet news sources. Headlines are sub-divided by category to help find features quickly. News is delivered in a tickertape bar at the top of the monitor, full stories can be read with one click in a Web browser. UK pricing is available, but a demo version is on the *Macworld* cover CD. **Computers Unlimited, 020 8358 5857**



World maps

Maps In Minutes has released two new collections. World Relief costs £125, and features Earth globes and whole-world maps. The £3,000 Earth Images Collection includes digital images of the Earth taken from satellite data. The maps are available online at www.mapsinminutes.com. **Maps In Minutes, 01840 212 135**

continues page 38

CDs & Books

Virtual heritage tours

Real Castles offers a history of castles in Medieval and Tudor times, as well as castles used up until the Second World War. Designed by English



Heritage, Real Castles is available for Mac OS 7.1 and above, and offers a number of on-screen activities, including a castle tour. It ships with a 48-page colour book and costs £14.99.

English Heritage, 01536 533 500

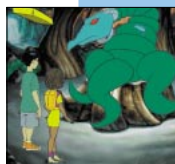
Working in Works

IDG's £18.99 *AppleWorks 6 for Dummies* shows readers how to use Apple's multi-purpose graphics, word-processing, database and presentation applications. The book includes hints on how to create spreadsheets and graphics, and how to publish content on the Internet.

IDG books are available at up to 35 per cent off from www.macworld.co.uk/readersoffers or by calling 020 7831 9252.

Junior Sherlock

Mutant plants and kids feature in Clue Finders Adventures



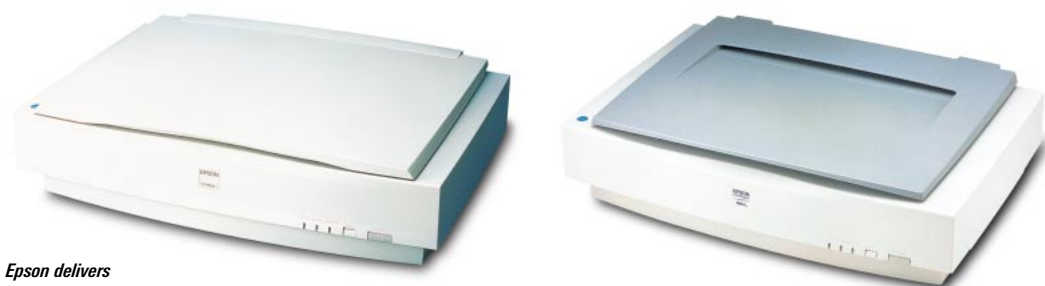
Years 6 and 7, an interactive computer game that makes learning fun through lively graphics and imaginative characters. Priced at £17, it supports essential National Curriculum skills

Hallmark, 01664 481 563

Storm ahead

Storm Educational Software has redesigned its Smudge the Spaniel Software to run on external and internal networks using Web browsers. Targeted at children aged 4-11, the program contains links to the National Curriculum and to the Scottish 5-14 Curriculum. for offline work.

Storm Software, 01747 858 323



Epson delivers

The Epson GT-10000 (above, left) and Expression 1640XL (above, right) are the company's latest scanners. The former has an optional FireWire connector, while the latter comes with FireWire as standard.

Epson assault

Epson has launched two scanners – the Expression 1640XL and the GT-10000. The Expression 1640XL can capture 440 billion colours, and can scan an A3 document in under a minute, according to Epson.

The USB and SCSI Expression 1640XL has a resolution of 1,600-x-3,200dpi when used in conjunction with Epson's Micro Step Drive. Adding an A3 transparency adaptor enables users to scan 35mm and 4-x-5-inch transients.

Other features of this model include internal and external 42-bit colour depth – allowing fine detail to be highlighted – and an optical density of 3D.

The GT-10000 is a high-speed A3 scanner offering a resolution of 600-x-2,400dpi. Features include advanced networking and connectivity through an optional FireWire interface.

Both models ship with Epson Network Image Express, a hardware scanner-server for connectivity and processing. This allows businesses to enjoy the benefits of a multi-user product without needing a host computer for the software.

The GT 10000 is priced £890, while the Expression 1640XL costs £1,699.

Epson, 0800 220 546

Nikon cameras zoom on

Nikon has released the CoolPix 880. The digital camera has a USB interface for data transfer at up to 2.5 seconds per-frame in Normal mode.

The camera has a newly designed 2.5x Zoom-Nikkor lens, 4x digital-zoom capability and advanced digital-image control. It also boasts a Quick Review feature, so the user can view images in full frame.

The camera's Scene Mode selection makes focus or exposure adjustments for the user, depending on the situation and selected

mode. Scenes include Portrait, Party/Indoor, Night Portrait, Beach/Snow, Landscape, Sunset, Night Landscape, Fireworks Show, Close Up, Copy and Back Light.

The CoolPix 880 features a one-touch start button and operates at high speeds whether zooming, auto-focusing or data processing.

Available in two colours – metallic silver or charcoal black – the Coolpix 880 ships from October and costs £595.

Nikon, 020 8541 4440



Picture perfect

The Nikon CoolPix 880 features automatic exposure and focus.

Angelo puts ISDN in the picture

Angelo – a primary-rate ISDN PCI card – has been launched by Hermstedt. Angelo offers multi-channel bundling, so the card can support Multilink Point-to-Point-Protocol language. This means servers can provide slots for simultaneous connections.

In addition to the two- and four-channel bundling schemes offered, it's possible to bundle up to 30 channels on the card.

Angelo's 30 B-channels can increase bandwidth to 1,920Kbits. With all 30 channels bundled, a whole CD-ROM can be transferred in under 45 minutes, without compression, according to Hermstedt. Priced at £2,750, Angelo ships with Grand Central Pro file transfer software. Hermstedt, 020 7421 1500

HP ships wideboys

Hewlett-Packard has launched a series of DesignJet large-format printers: the 5000, 5000PS, 500, 500PS, 800 and 800PS. All PS models use Adobe PostScript 3. The 5000 family is targeted at print providers or heavy-duty printers. The 5000 and 5000PS can print at resolutions up to 1,200-x-600dpi.

Both models hold up to 256MB RAM and use a six-colour printing system. Print speeds reach up to 569 square-feet per hour, and the printers ship in 42 and 60-inch models.

The 60-inch 5000 and 5000PS retail at £11,300 and £14,000 respectively, while the 42-inch 5000 and 5000PS are priced at £7,350 and £9,300.



The 500 and 800 printer families are scaled-down versions of the DesignJet 5000 series.

There are two printers in each family – the DesignJet 500 and 500PS, and the DesignJet 800 and 800PS.

The 500 and 800 models are aimed at architects, engineers and designers. The 500 series has 16MB RAM, while the 800 series has 96MB RAM.

The 500 DesignJet series has an image resolution of 1,200-x-600 dpi while the 800 series has a resolution of 2,400-x-1,200 dpi. Available in 24 and 42 inches, the 500 series retails at £1,650 and £2,450 respectively. The 500PS comes in 24- and 42-inch models, which are priced at £2,150 and £2,950.

The 800 and 800PS are also available in 24 and 42-inch models. The 800 series cost £3,850 and £4,650, while the 800 PS models are priced at £5,200 and £6,000.

The entire family of DesignJet printers are shipping now.

Hewlett-Packard, 08705 474 747



Print bigger

HP's large-format printers come with or without PostScript and come in a range of sizes, including 42 and 60 inches.

Pictured are the DeskJet 800PS (above) and the DeskJet 800 (below, left).

Kodak camera boon

Kodak has released two digital cameras – the DC3400 and the DC800, each capable of capturing 8-x-10-inch images.

Standard features include an optical viewfinder, image-quality settings, a flash and a ten-second self-timer. Both ship with an 8MB Compact Flash card, capable of storing up to 60 images. Accessories include Kodak's Arcsoft PhotoImpression 2000 software – which transfers images from camera to computer – and a USB card reader, driven by Picture Card Reader software.

The USB DC3400 (top right) has a 2x optical-zoom and a 3x digital-zoom. Other features include an auto-focus and red-eye reduction. The camera costs £339.

The DC3800 (bottom right) has a fixed 6.9mm lens, a 38mm preview display, auto focusing and a date and time stamp. Reaching resolutions of 2.1 megapixels, the camera costs £297 and has a 2x digital zoom. It also offers a burst mode of two frames per second for up to four frames, as well as a flash.

Kodak, 0870 243 0270



Double take

Kodak's DC3400 (above) and DC800 (below) can both capture 8-x-10-inch images.



Fresh view

CTX has launched the PR1400F, a 21-inch flat-screen 125KHz-Trinitron CRT (cathode ray tube) monitor. Available now, it has a 20-inch viewable area, a dot pitch of 0.24mm and maximum resolution of 2,048-x-1,536pixels at a 75Hz refresh rate. A four-port USB hub and BNC connectors also feature in the £612 monitor. CTX, 01923 810 800.



Translation tool

Ultra Lingua has released Ultra Lingua 3.0.2 French to English, the newest version of its French dictionary for the Mac. It includes over 250,000 indexed entries and thousands of idiomatic expressions and slang phrases. There's a 30-day free demo on the cover CD. The application usually costs \$29, but the company is offering *Macworld* readers a \$5 discount at www.ultralingua.com/macworld.html. Upgrades from previous versions cost \$14. Ultralingua, www.ultralingua.com



Remote Mac

Keyspan has cut the cost of its Digital Media Remote, from £59 to £44. The remote enables owners to control audio, video and presentation programs on their Mac. It consists of two components, an infrared remote and a receiver unit that plugs into the USB port. It ships with "key maps" for controlling QuickTime, Apple DVD, CD and audio players, SoundJam, RealPlayer, PowerPoint and the Finder. AM Micro, 01392 426 473



Digital jukebox

MusicMatch has released MusicMatch Jukebox. The application will download, record and play digital music. It comes with free CD-quality MP3 encoding abilities at speeds up to 12x faster than real time. It has integrated CDDB support and can also search for songs online and play CDs. MusicMatch, www.musicmatch.com



The Apple Masters programme is largely a name-dropping exercise in PR-puff



No more heroes...

As Apple continues to embrace success, I recently took the opportunity of examining a long-running Apple tradition: the Apple Masters programme. This has been running for years now, and celebrates high-profile users of Apple computers.

The title of Apple Master is bestowed on those who have promoted Apple, even through the hard times. Many consider it an honour. But is it, really?

A glance at the list of Apple Masters makes one wonder what the point of it is. It seems you don't have to be a die-hard Apple fan – all you need is a recognizable face and a Mac. If you're famous and use a Mac, I suggest you call Apple and see what it can do for you; perhaps a free flight to a US Macworld Expo, or a new Mac.

If a movie star says some nice things about Macs, Apple is quite happy to bestow upon them the Mac equivalent of a knighthood. But are the right people getting this award? Here are some examples.

Douglas Adams You know, the *Hitchhikers Guide to the Galaxy* guy and self-proclaimed "fantasist". What has he ever done for the Mac community? He wrote some hilarious books once, but nothing for ten years. Did he write them on a Mac? Possibly, but so what? Word processing is hardly pushing the envelope of computing. Where was he when the Mac was in crisis? He was developing an adventure game that initially appeared on PCs only.

Only after some pressure from real Mac fans did he make a version for the Mac, but it was about as funny as a *Goodies* re-run. The only benefit Douglas Adams may afford Apple is to talk kindly of the new Macs at a swish dinner party. Fantasist indeed...

Sinbad Not the rotund *Brookside* character, but the US comedian and movie star. A great guy, but I don't understand what makes him a Mac master.

Lauren Bacall Okay, she's a Hollywood idol, but what makes her important to Apple, us, or anyone?

Chris Bonnington Big-bearded mountain climber who has used a PowerBook and a mobile phone to transmit from snowy mountaintops. I wonder if this makes him a Motorola Master, too.

Murray Gell-Mann Discovered the sub-atomic particle, the Quark. Maybe the XPress crew nominated him.

Damien Hurst I happen to love his work, but you don't need a G4 to cut a cow in half, do you?

Most of the Apple masters are worthless figureheads more suited to *Hello!* magazine than touting Apple wares.

Because of this, I'm starting a new program to honour

the heroes of the Mac world: the Macworld Hall of Fame – a place where the worthy are recognized for their efforts to promote Macintosh computing. By the time you read this you can check www.macworldhalloffame.com, for the official list. Here are a few names that are top of my list:

John and Thomas Knoll Adobe Photoshop creator John Knoll is a worthy Apple Master, although Apple curiously neglects his brother and co-author Thomas Knoll.

Jonathan Ive Apple's chief designer Ive and his team has changed the face of Macintosh and made it a universal object of desire.

Steve Wozniak Apple's co-founder has always been the unsung hero of Apple, but without him and his electronics skills there may never have been a Mac.

Jeff Raskin An even more obscure contributor to the early Macs. He was the guy that actually started the original Macintosh project at Apple before Steve Jobs muscled-in on the action. He was also the one that got Jobs to visit Xerox PARC. It was this visit that became the inspiration for the Graphical User Interface that underpins the Mac. Jobs also saw a mouse in action for the first time at PARC. Unfortunately, Steve didn't stick around long enough to notice that they had invented decent networking too.

Bill Atkinson Responsible for classic Mac apps such as MacPaint and HyperCard – the tools that started the multimedia revolution.

David Pogue *Macworld's* columnist has performed great services to the Mac community. Apart from entertaining with his Mac musings, David has written a catalogue of *Dummies* books to make life easy for Mac converts. He has also given personal tuition to stars including Mia Farrow, Gary Oldman and Vanessa Redgrave. He's responsible for more people catching the Mac bug than anyone outside of Apple.

Bill Gates He may seem an odd choice, being often thought of as the enemy. However, without support from Microsoft – and certainly without Microsoft Office – the Mac platform would remain largely incompatible with the most popular applications on the PC. Remember, we use Microsoft products by choice – PC users don't always have that luxury.

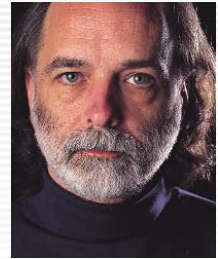
Steve Jobs He didn't have to come back to Apple. Pixar was and is doing fine. But he chose to save Apple because he loves it. If he hadn't, the Mac may not now exist.

Suggest your own worthy Macworld Hall of Fame candidates. Email your lists of nominations to halloffame@macworld.co.uk.

mw

"You don't have to be a die-hard Apple fan to be an Apple Master – all you need is a famous face and a Mac"

Virtual smells are set to kick-up a stink in the computing world.



Scents ability

The other night, I was told that ants have five noses. I don't know if that improves their sense of smell, or simply provides exceptional opportunities for serious substance abuse.

Smell is obviously one of our most important senses, and it even plays a key role in determining taste.

But, generally, smell isn't something we associate with computers... unless we're talking about the rotting-Reebok pong of a programmers' office party. Smelly or not, digital technology is still populated with some sick and savage mind-sets, and, in the quest for more life-emulating applications, some sad spark has decided we need to upgrade our PCs and Macs with what can loosely be described as a sort of digital scratch-and-sniff card.

Somewhere out in Weirdsville, a company called DigiScents has recently acquired a rival scent-sensing technology, formerly owned by an Israeli company called SenseIT. DigiScents thinks it's discovered the thing that will give computing a new lease on life – the ability to smell.

As I understand it, the intention is to bring to market a product that will make our software emit smells that reflect what is on the screen. DigiScents claims that just a few essential oils can be mixed and blended together to create scents that will be instantly identifiable by almost everybody. The technology is expected to appear on high-street shelves as early as Christmas, and be incorporated into shopping, advertising and video games.

As you'd expect, several computer-game developers have already signed-up to include the proposed technology in future software releases. The device itself will, in theory, have the ability to blend together 128 basic scents and produce an almost infinite number of smells. So now, instead of just having to set screen resolution and colour, you'll have to adjust your scent table as well.

The device DigiScents is producing follows on from research that is well over ten years old, and that unlocked and decoded the genes that control the sense of smell in humans. As a result, DigiScents has constructed a database that compares computer smell recordings with thousands of human-tested smells. By using a machine/human interface, the developers are able to communicate a vast range of smells and send them over an electronic network. The implications are hideous. OK, it might be appetizing to be able to smell

a pepperoni pizza on-screen before you order it – or sample perfumes, aftershaves, or air-fresheners, before you place an order. Games could become savagely realistic, with smells of exotic locations and violent death. And, depending on your fetish, thriving porn sites could become even more appalling.

As rock diva Grace Slick once said, there're only two things in the world that smell like tuna... and one of them is tuna. I mean, just think of what might happen if you didn't set your smell palette correctly? Or what if your olfactory oil cartridge ran out of a key ingredient during a crucial download? And if you don't have a proper 'smell-check' installed, your whole room could be flooded with an unpleasantly foul or embarrassingly inappropriate odour.

Then there's the whole issue of compatibility. Will smells that run on Windows machines port over to the Mac? Will Microsoft smells have a more acrid tinge than their OS X counterparts? Or, for that matter, will Apple include smell technology, or will it be a third-party add-on?

Over the past few months, we've been told that Mac OS X will incorporate several new technologies that will not only make our Macs run faster and more reliably, but will also simplify and enhance computing. With the usual Apple cool, icons are supposed to be as sharply rendered as photographs, control buttons will throb in soft blue light, and windows won't snap closed – they'll simply fade away. But nowhere in any of the specs or descriptions can I find any indication that OS X will support smell.

The proposal to get this product to the end-consumer by the final part of the year may seem a little optimistic. Consumers already smelled a rat when this sort of technology failed miserably some years ago with scratch-and-sniff magazine adverts. Given current olfactory bandwidth issues, it may simply prove to be a short-lived novelty for those smelly geeks who collect gadgets and add-ons. But then again, who knows?

Perhaps in our treacherous quest for a hermetically sealed digital existence – in which we never need to stray far from the maddening glow of our screens – this electronic nose-candy will be seen as a pine-scented breath of fresh air among the otherwise noxious fumes of ozone and BO.

After all, as Shakespeare said: "That which we call a rose by any other word would smell as sweet." **MW**

"The developers of DigiScents are able to communicate a vast range of smells and send them over an electronic network"



Macworld Rating

★★★★★/9.0-10.0 = OUTSTANDING

★★★★/7.0-8.9 = VERY GOOD

★★★/5.0-6.9 = GOOD

★★/3.0-4.9 = FLAWED

★/0-2.9 = UNACCEPTABLE



Consumer portable Mac computer

iBook

Manufacturer: Apple (0870 600 6010) www.apple.com/uk

Pros: Unique design; sturdy-yet-elegant case; convenient handle; no latch; new white plastics; sharp screen; full-size keyboard; FireWire and AV port; iMovie 2 software; AirPort-ready; ATI Rage Mobility 128 graphics card.

Cons: Not the lightest laptop around; unavailable in Graphite.

Price: £1,249 (including VAT)

Colours: Available in Indigo and Key Lime.

Star Rating: ★★★★★/8.3

iBook Special Edition

Pros: Unique design; sturdy-yet-elegant case; convenient handle; no latch; new white plastics; sharp screen; full-size keyboard; FireWire and AV port; iMovie 2 software; AirPort-ready; ATI Rage Mobility 128 graphics; 466MHz G3 processor; DVD drive.

Cons: Not the lightest laptop around; unavailable in Indigo.

Price: £1,499 (including VAT)

Colours: Available in Graphite and Key Lime.

Star Rating: ★★★★★/8.6



The iBook is one year old. Apple's bright portable computer for consumers still looks like no other laptop on Earth. It's not gun-metal grey, black or shiny silver like most portable computers out there. The iBook is unashamedly unique, and Apple has successfully hooked those people who want their computer to stand out in a crowd – the education market, in particular, has embraced the iBook.

Until one of the big PC makers catches on to this trend – and Dell has only just stopped making beige computers – Apple has this market sewn-up. The iBook has been the number-one-selling portable computer in the US retail markets on and off since its launch last autumn. And it can be credited with some of Apple's success in the education market: research-analyst IDC's *Worldwide Education Market Report* shows that Apple captured 26 per cent of the US education market and 14 per cent of the worldwide education market at the start of this year.

But Apple isn't sitting still, unveiling revamped iBooks at this September's Apple Expo 2000 in Paris (see News). The iBook's form remains largely untouched, but Apple has added FireWire connectivity, an AV port and iMovie 2 video-editing software for digital-movie making, as well as increasing chip speeds and hard-disk capacities. Colours change, too... one rather violently.

Let's take a long look at the new colours – grab a pair of sunglasses for the bright-green one. The standard iBook now comes in deep-blue Indigo and radioactive Key Lime (it's a fruit that makes a great pie). If you fancied

the old Tangerine iBook, you'd better hurry, as Apple has now discontinued this orangey 'flavour' – was this part of the Good Friday agreement?

Apple reckons that Key Lime will appeal to kids – although I always thought children hated greens... It's so bright that it actually glows in the right lighting conditions. The Indigo iBook features a darker blue than the old Blueberry model, and is all the better-looking for it. Even the Graphite Special Edition (SE) iBook looks different to the old SE model – as all the iBooks now feature whiter-than-white Snow plastics around the colour elements. The SE iBook is also available in Key Lime, but not Indigo – which is a shame. Why?

Another colour restriction is that you can buy either of the Key Lime iBooks only from the online Apple Store. You cannot walk into an AppleCentre and walk out with a green 'un – nor can you order one via mail-order. Maybe only Apple can handle the levels of brightness.

Video star

The best thing about the new iBooks, however, is not the colour range – it's the addition of digital-video functionality.

The iBooks now boast a 400Mbps FireWire port for you to connect your digital camcorder. An AV port has also been added, providing audio and composite-video output. This doesn't offer quite the quality of the PowerBook's superior S-video output port, but it should be fine for showing your iMovie productions on a telly. In fact, the AV port – which will plug straight into most modern video recorders – is more likely to offer a direct route to your

TV or video than the more specialized S-video.

iMovie 2 (reviewed in September's *Macworld*) is fantastic video-editing software – and it is now installed on every Mac except the entry-level £649 iMac. iMovie 2 is extremely simple to use and is packed full of professional effects. Just about anyone armed with a FireWire Mac, digital camcorder and iMovie 2 can make movies that will stun their friends and family. Now that the iBook has embraced desktop-video making, more people will be able to edit their movies on the way home from holiday, rather than having to wait for their return.

Fire proof

The addition of a FireWire port also means you can add supporting peripherals, such as speedy hard-disks (see page 93), recordable CD drives, and scanners. Unlike the other Power Macs, iMacs and PowerBooks, however, there's just the one FireWire port – so you won't be able to transfer camcorder footage straight to an external FireWire hard drive. To make up for this, Apple has enlarged the internal hard drive from 6GB to 10GB.

Also boosted is the iBook's processor. The standard-model iBook now features a 366MHz G3 processor – up from 300MHz. The Special Edition iBook goes flat-out at an impressive 466MHz.

In our tests on the new portables, these faster chips made less of a speed difference to iBook performance than the 8MB ATI RAGE Mobility 128 graphics card that replaces the ATI Rage Mobility graphics controller. This means that the consumer iBook now boasts the same graphics chip set as the professional PowerBook.

This new video controller makes gaming a lot more fun, too. It certainly makes a difference playing games – such as Quake III Arena – that rely on speedy graphics performance for ultimate fun.

Every iBook comes with 64MB of RAM, 256K level-2 cache, 10GB IDE hard drive, USB and FireWire ports, built-in 56K modem, 10/100Base-T ethernet and iMovie 2.

Design delights

The iBook might look a bit sissy, but it's a tough nut to crack, with its co-moulded rubber edges and knock-resistant plastics. The handle and spring-loaded hinge are still features that make PowerBook users go green (not *that*

green) with envy. And the 12.1-inch active-matrix TFT SVGA display – though smaller than the PowerBook's spacious 14.1-inch screen – seems just as sharp, displaying millions of colours at a more-than-reasonable 800-x-600-pixel resolution.

It's a shame that Apple's engineers – who compressed the hulking Power Mac into a little Cube – couldn't get the iBook's weight down a bit. With both the iBook and PowerBook weighing in at around 3kg, Apple is falling seriously behind other laptop manufacturers. The iBook and PowerBook have their place, but many of us are screaming out for a Mac sub-notebook that weighs as little as Sony's 1.5kg Vaio.

Software extras

Of course, the iBook ships with Mac OS 9; and it will be able to run Mac OS X when it officially ships early next year. The bundled AppleWorks 6.0 is a collection of business applications, including word processor, spreadsheet, database, presentations, and light graphics tools.

But if you're really serious about these type of programs, you should consider buying Microsoft's superior Office 2001 (reviewed page 51) for an extra £499 (inc. VAT); or you can buy MS Word 2001 separately for £299. AppleWorks is fine for most of us, though. On an more entertaining note, the iBooks come with two amusing games: Nanosaur and Bugdom.



Macworld's buying advice

The iBook is an innovative, good-looking laptop that can handle most computing tasks on the go – from browsing the Net to creating your own Web site. But you need to select which model – and colour – with care.

The extra £250 you have to cough up for the Special Edition does give you value for money, as well as the Graphite colour option. The Special Edition iBook is 14 per cent faster than the standard model, and also boasts a DVD-ROM drive that lets you watch DVD-Video movies. But the standard iBook is easily fast enough for most non-professional users – even when editing digital movies!

Bear in mind, though, that £200 on top of the iBook Special Edition gets you a 400MHz PowerBook that is only 6 per cent faster, but offers two FireWire ports, S-video and has the larger screen. The iBook SE, however, matches this entry-level PowerBook on memory and hard-drive capacity. Work out what you want from a portable Mac, and do your sums...

And make sure you see the new colours before making your final choice – that luminous green really has to be seen to be believed...

Simon Jary



Don't forget AirPort

Like most other Macs, all the new iBooks are AirPort-ready: an additional £320 (inc. VAT), the AirPort Card and Base Station (above) let you set up a wireless network. You can network an iBook to any other AirPort-connected Mac, browse the Web and collect email up to 150ft away from your phone line or ethernet connection.



New iBooks speed tested

Best results in test. Longer bars and higher scores are better.

Model	Speed
PowerBook 500MHz	1,961
PowerBook 400MHz	1,704
iBook SE 466MHz	1,605
iBook SE 366MHz	1,430
iBook 366MHz	1,413
iBook 300MHz	1,187

Speed scores tested with MacBench 5.0. Full Mac benchmarks on page 132.

iBooks in **bold** reviewed here. Other iBooks are previous models.



Music editing program

Cubase VST/32 5.0

Publisher: Steinberg www.steinberg.net

Distributor: Arbitr (020 8207 5050)

Pros: Improved user-interface beats its competitor, Logic, ironically, by its more logical approach.

Cons: No Pro Tools TDM compatibility.

Min specs: Power Mac; 16bit audio I/O.

Price: £649 (including VAT)

Star Rating: ★★★★★7.5

Cubase – probably the top-selling music software in the UK, with a user-base of around 30,000 people – has undergone a major revamp with the release of Cubase VST/32 5.0.

The user interface has been overhauled and a number of features added. For example, in the Arrange window there are columns to the left of the track-part display, which can be shown or hidden when you click and hold on any of the column headings. There's also a pop-up list that lets you choose which column you want to work with.

Altering the width of a column once it's been set is a problem in many apps. In Cubase VST/32 5.0 it couldn't be simpler. Just point-&-click near the right-hand edge of any column in the Arrange window, and use the cursor to adjust its size. The same thing applies to the height of the rows of tracks.

Handling MIDI

Steinberg has also improved the way Cubase handles MIDI channels and outputs. Three columns are provided for this: Channel, to select the MIDI channel; Output, to select the appropriate output; and Instrument, to select the instrument by name. In Cubase terms, an Instrument is a combination of a MIDI channel and an output. This can be given a name, which can then be used to quickly select



Channel crossing

Cubase VST/32 now lets you make drums sound "fatter" by mimicking analogue tape's saturation abilities.



Bass line

Cubase VST/32's interface has been radically redesigned in version 5 – windows are customizable, as are control knobs.

these settings instead of making the changes to both the Channel and Output columns.

You define your instruments using the "Set Up Instruments..." menu selection in a pop-up menu that appears when you click on an Instrument column. Up comes a dialogue box that lets you choose a MIDI channel, an output, and a Patchname Source and Patchname Device. Having made the settings, you can then enter both a shorter and a longer name – which Cubase will display elsewhere as appropriate.

The parameters Inspector lets you open a new Extended section by clicking on a small arrow at the top right of the Inspector. Here multiple outputs can be added to any track – so you can easily play back a track over several different MIDI channels. A Randomize feature plays back MIDI parts with random variations in pitch velocity, timing or length, while a Dynamics section affects the dynamics and note range of the material in various ways.

Access

Cubase's Autosave can be set to any time you want, and you can keep a specified number of your most recently used files available in the File menu for quick access. Cubase now lets you select the number of divisions of a quarter note that will be displayed in the edit window – all the way from Cubase's original 384 right up to 1,536 subdivisions.

The way in which the control knobs work can be changed between Circular, Relative Circular or Linear. Linear mode, lets you click on a knob and drag it up or down with the mouse to change values. In Circular mode, clicking anywhere on the knob's edge changes the value immediately. This can be inconvenient, so a Relative Circular

mode has been added preventing this.

In previous versions of Cubase VST, there was a Channel Mixer window and a Group Mixer window – both of which allowed you to view mixer channels and groups. The designer originally intended to put mixer channels in the first and groups in the second, but decided to put both in each window. Now, the windows are called simply Channel Mixer 1 and 2, and the purpose – to display different views of these in two smaller windows – is more obvious. There's a pop-up menu for selecting what will be shown in the windows.

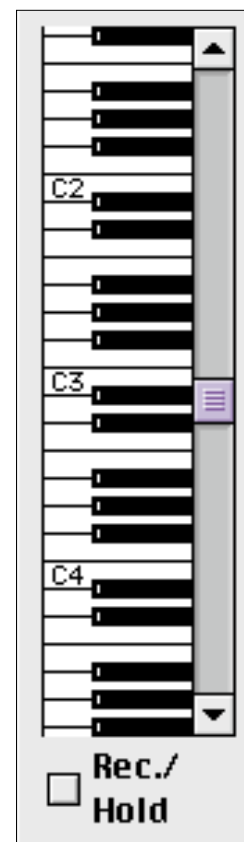
One of the best new developments in Cubase VST/32 is the VST Instruments – not to be confused with Instruments. These are actually software simulations of synthesizers and drum-machines to which you can route your MIDI tracks internally within Cubase VST/32. The audio outputs can then be routed directly into the VST Channel mixer for playback.

Another neat addition is the True Tape input effect. This lets you simulate the effect of tape saturation when recording in VST/32's 32-bit mode. Recording engineers working with real drums often take advantage of analogue tape's saturation characteristics to make drums sound "fatter", for example – which they will do when extra harmonics are added to the sound by the tape-saturation process. Now you can achieve a similar result using Cubase VST/32.

Macworld's buying advice

While there's still room for improvement, version 5.0 is undoubtedly the best so far. If you're looking for a top-flight music-sequencing, recording, and mixing system – and you don't need compatibility with Digidesign Pro Tools TDM hardware – then Cubase VST/32 will do just fine.

Mike Collins



We are the robots

Cubase's range of classic synthesizers, means you can recreate those '70s classics.



Jammin'
Both the Rio 600 and DAP II MG come with SoundJam.

Portable MP3 players

The MP3 craze is transforming the way people buy, sell, steal, and play music – more and more music lovers are not only playing MP3 tunes on their computers, but also taking their favourite tracks on the road with portable MP3 players.

Until recently, the selection of Mac-compatible MP3 portables has been sparse. Now, several portables are vying for your shirt pocket. We tested two: Creative Labs' DAP II MG and S3's Rio 600. Both have unique strengths, but the Rio 600 is the pick of the two.

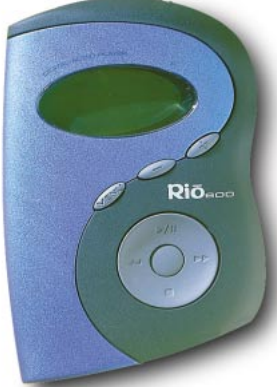
Memory transfers

Both players rely on USB for transfers from the Mac to the player's memory. But transfer speeds vary widely. In our tests, the Rio 600 handled transfers three times faster than as the DAP II MG.

Each player includes Casady & Greene's SoundJam MP software, for encoding MP3 tracks from CDs and organizing them into playlists. After 14 days, the version of SoundJam MP bundled with the players turns into a shadow of itself, disabling many features unless you pony-up more cash.

With the DAP II MG and Rio 600, you use SoundJam MP to transfer tracks to the player and to delete them from its memory.

Both players let you adjust a track's



bass and treble, and they also have presets for common musical styles, but the Rio has the larger selection.

The amount of memory in an MP3 player determines how much music you can take with you. The Rio 600 contains 32MB of internal memory – enough to store about 30 minutes of near CD-quality music, that's MP3-encoded at 128Kbps. You can expand the Rio 600's memory by replacing the player's back cover with one that contains expansion memory.

The DAP II MG lacks internal memory, relying instead on flash-memory cards . Our review unit included a 64MB card.

The DAP II MG also contains an FM radio tuner – an optional tuner for the Rio 600 has not yet been released. In our tests, the DAP II MG did a good job of picking up weak stations. It also has a unique voice-mode for recording

dictation. It's handy, but switching the DAP II MG to voice mode requires a trip into the menu system. Designing a user interface for a device that has a tiny LCD screen and minuscule buttons is a challenge, and the Rio 600 does the best job of meeting it. Its LCD shows more information than the other player and it's attractive and easy to read.

Macworld's buying advice

It's great to see a growing selection of Mac-compatible MP3 portables. The Rio 600 is the best of the two tested here, sporting an attractive design, the most legible LCD, and an innovative expansion scheme. It's also the least expensive and has the faster transfer times. The DAP II MG is a solid runner-up; its built-in FM tuner and voice recorder make it particularly versatile.

Jim Heid

MP3 players compared

MANUFACTURER	MODEL	STAR RATING	PROs	CONS	MIN SPECS	PRICE	DISTRIBUTOR	CONTACT	WEB
Creative Labs	DAP II MG	★★★★/6.5	Includes FM tuner and voice recorder; good LCD Display.	Bundled software requires upgrade to use all features.	Mac OS 8.6 or later; Power Mac G3 or better; USB port; USB Manager 1.2 or later.	TBA	Creative Labs	0208 327 5000	www.europe.creative.com
S3	Rio 600	★★★★/7.0	Innovative expansion scheme; easy to use; excellent LCD.	Bundled software requires upgrade to use all features.	Mac OS 8.5; USB; CD-ROM.	£139	MacZone	01483 500 510	www.riohome.com

Low-end RPG

Silver

Publisher: Infogrames
www.silver-game.com

Distributor: Softline
(01372 726 333)

Pros: New slant on combat.

Cons: Lacks complexity.

Min specs: Mac OS 8.6; 233MHz PowerPC; ATI graphics card or compatible.

Price: £39 including VAT

Star Rating: ★★★/6.9

As an adventure game, Silver doesn't hold too many surprises. Within the first few minutes the bad guy captures the wife of the hero, the hero gives chase – you can guess the rest. I haven't reached the end of the game yet, but if I'm successful and vanquish the bad guy, I'm sure I'll be reunited with the Ball and Chain.

If you like games like Final Fantasy you'll probably enjoy this one. However, there's nowhere near the complexity of story with Silver. It has fewer active characters, fewer non-player characters and generally less meat to it. The

graphics are fairly good, and the ATI chipset is put to good use, create rippling pools, smoke effects and big magic-attack. Good graphics, though, are no substitute for an enthralling story though.

One plus-point for Silver is the combat method. Rather than being a wholly menu-driven combat mode, choosing weapons or spells from a list, mouse strokes are used to wield the sword. This means that there's real excitement when you meet up with a gang of baddies. An up-stroke plus the control key makes the character lunge

with his sword. Moving the mouse left or right swipes the sword, so you can battle more than one bad guy.

Other aspects of the gameplay are run of the mill – you increase energy by eating conveniently placed apples and cure poisonings with potions.

Macworld's buying advice

Without a good story line, a role-playing game is just a futile series of actions. Silver fits this category. But, if you are a fan of the genre, it won't disappoint. But, it doesn't have the scale of other RPGs.

David Fanning

See Office 2001 feature in September's Macworld.



Business-bundle giant

Microsoft Office 2001 for Mac

Publisher: Microsoft www.microsoft.com/uk

Pros: Floating palette interface; neat integration with links and flags; full PIM.

Cons: Eats up lots of disk space; still no database program.

Minimum specs: 120MHz PowerPC; Mac OS 8.1 or later; 32MB RAM with at least 1MB of Virtual Memory for systems prior to OS 9.0; 48MB RAM with at least 1MB of Virtual Memory for OS 9.0 or later; 160MB hard-disk space.

Price: £410; Upgrade from Office 98, £209 (both prices exclude VAT).

Star Rating: ★★★★★/8.0



Office 2001 is the integrated package Office 98 ought to have been. The applications Word, Excel and PowerPoint now employ a common interface, and are joined by Entourage – a personal-information manager (PIM) and messaging client.

Word has been improved significantly by the introduction of context-sensitive floating palettes. For example, instead of drilling down through menus and dialogues, or navigating tear-off toolbars, you can edit document, text and picture attributes from one Formatting palette. The Data Merge Manager palette, especially, makes setting up and handling mail merges logical and controllable for the first time.

Word's Web documents can include nested tables, and you can import 24-bit images onto any page. The new Picture palette lets you retouch bitmap images with brush strokes, or apply filter effects directly within Word, Excel and PowerPoint.

Excel's principal upgrade feature is the List Manager. This inserts a special framed-area within your spreadsheet purely for entering list data. The List Manager applies colour, and re-arranges data without affecting its appearance.

The autocomplete feature, which saves time entering repetitive data, now memorizes multiple entries that begin with the same letters or numbers, not just one. There's a new floating calculator, which though ridiculously big, is great for testing formulas before entering them into your worksheets.

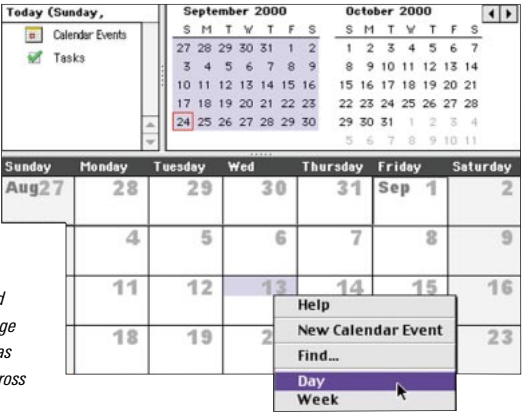
PowerPoint now has a better default interface which shows the current slide, notes and outline structure in a three-paned window. Presentations can be saved as QuickTime movies. More than one master template per presentation can now be used, and an intuitive table-layout can be added directly to a slide in real-time.

Entourage looks like Outlook Express, but with a beefed-up contacts book and fully customizable calendar and to-do functions. All of these can be accessed from the other Office applications: the contacts book forms the source of your Word mail merges, for example, or an item in your to-do list can link to specific documents. The Calendar can even be used to arrange meetings with other iCalendar-compliant PIMs.

Macworld's buying advice

This final release version of Office 2001 compares very favourably with the betas we have tested over the summer. It runs faster and cleaner than expected, and is easier to use for the expert as well as the beginner. One day, Microsoft may be talked into adding a database to the suite, but, until then, Office 2001 does the trick.

Richard Boardman



E-tools

Manage not just your email, but contacts and agenda within Entourage – while features such as the Dictionary work across all Office applications.



Photo-stitching app

VR Worx 2.0

Publisher: VR Toolbox

www.vrtoolbox.com

Distributor: Digital Toolbox
(020 8201 4455)

Pros: Built-in image editor with text titling and captions; fully AppleScriptable; Photoshop acquisition plug-ins; sound capabilities.

Cons: Cannot use soundtracks seamlessly throughout an entire movie.

Min specs: Macintosh Power PC; Mac OS 8.1 or later; QuickTime 3.0 or later; 20 MB RAM.

Price: £219 excluding VAT

Star Rating: ★★★★★/7.9

For too long, Apple's QuickTime VR Studio has been sitting comfortably on top of the world of panoramic/virtual reality imaging. With the release of VR Toolbox's latest QTVR tool, Apple finally is getting a run for its money.

This feature-crammed set-up is actually VR ObjectWorx, VR SceneWorx and VR PanoWorx bundled into one application.

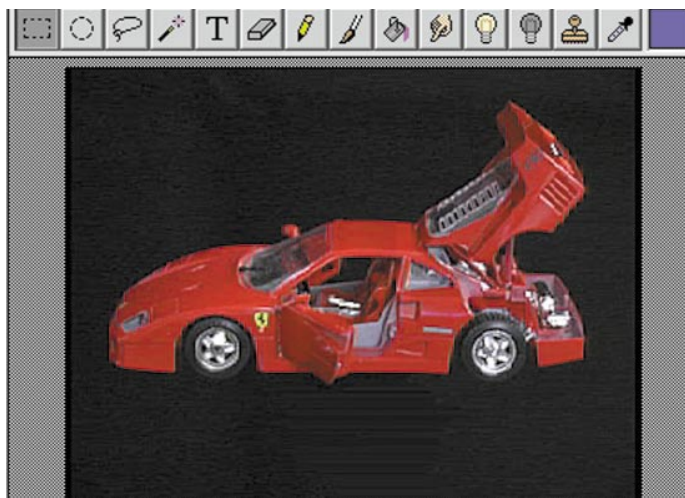
VR Worx 2.0 let users import QuickTime VR 1.0 movies and export panoramas and object movies in both 1.0 and 2.0 format. Unlike Apple's QuickTime VR Studio, VR Worx 2.0 is available on both Mac and PC.

Progress block

VR Worx presents users with a panel with up to seven tabbed folders, which commonly consists of Acquire, Stitch, Blend, Hotspots, Compress and Playback. Using a technique called "progressive disclosure" users cannot proceed to the next step in the process until all the necessary tasks have been performed – indicated by making the other folders in the panel dimmed. This linear approach is useful, especially if you're new to the tool. Also, when creating panoramas in VR Worx 2.0, the tool is a lot more flexible than QTVR when stitching images.

You can fully script VR Worx and it comes with both a selection of AppleScripts and templates and automated features, for use when creating quick email or Web ready QTVR movies.

VR Worx 2.0 can import still images from most-popular image formats. As with Apple's QuickTime VR Studio 1.0 you can



The Worx

VR Worx allows the synchronization of one or more sound tracks with specific views of an object. But it's limited, because sound can't play seamlessly throughout.

also import single-frame images from a video source, such as a camcorder or a QuickCam. This is an excellent solution for users creating single-row objects, which can be dragged and viewed from any point, since the process requires the object to be captured 360 degrees around its own axis. This is achieved by systematically rotating the camcorder, usually by ten degrees, and then taking another image until the object has been rotated a full 360 degrees.

VR Worx 2.0 comes with Matte, or blue-screen effects – only available on the Mac version – allowing for the masking-out of a region based on its colour. This means it can be replaced by a background picture or pattern.

While importing an image to create panoramas, VR Worx 2.0 surprises once again, with a neat built-in image editor, allowing for touch-ups and even text-titling and captions. Other features include a URL hot-spotter that allows hyperlink buttons to be created.

Macworld's buying advice

If you're looking for a complete QTVR authoring suite, VR Worx 2.0 is recommended. Not only does it surpass Apple's QuickTime VR Studio in features, but it's also user-friendly.

VR Worx can quickly knock-up QTVR movies to send by email, and developers will appreciate its advanced features.

Johan Lopes



Web photo album

LiveSlide Show 1.0

Publisher: Totally Hip

www.totallyhip.com

Pros: Simple interface; inexpensive; bandwidth-friendly transitions.

Cons: Limited audio capabilities.

Min specs: PowerPC; Mac OS 8.5; QuickTime 4

Price: \$29.95 download.

Star Rating: ★★★★★/8.1

Say you have some digital-camera images you'd like to post on the Web, but want to go beyond a boring online photo-album. Check out Totally Hip Software's LiveSlideShow 1.0. Based on Apple's QuickTime, this program lets you create slide shows complete with transitions between images, text captions, sound effects, and interactive navigation buttons. Despite a few rough edges, it's a fun and surprisingly powerful application.

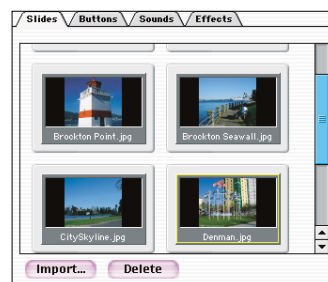
If you've used Apple's iMovie, LiveSlideShow will feel familiar: a shelf holds imported images and sounds, a timeline enables you to sequence images, and a preview area lets you see your work in progress.

With the Effects panel, you can add transitions between images. Adding effects is a cinch – drag the desired effect between two slides in the timeline, and they part to make room for it. LiveSlideShow uses QuickTime to

generate effects as the slide show plays back, so they don't bloat your file's size – as they would if you were to create them in a video-editing program such as iMovie. You can also add text captions to each slide, complete with optional antialiasing, drop shadows, and a variety of – mostly tacky – animation styles.

LiveSlideShow can import most QuickTime-supported audio-file formats, including AIFF and MP3, and you can record narration snippets directly within the program. Unfortunately, LiveSlideShow attaches sounds to individual slides – if a sound is five minutes long, the corresponding slide displays for five minutes as well.

LiveSlideShow's interactivity features are rudimentary but useful. You can add buttons to individual slides – when clicked on, these buttons can take viewers to the next or previous slide, or to the slide show's beginning or end.



Making a slide show

LiveSlideShow's iMovie-like interface makes creating QuickTime slide shows easy.

Macworld's buying advice

LiveSlideShow is easy to use, yet powerful enough to create interactive educational slide-shows, electronic brochures, or fun alternatives to online photo-albums. Its approach to sound limits your options, but one can't complain too much given the price.

Jim Heid



Video-effects package

Commotion 3.0

Publisher: Pinnacle Systems
(01483 442 003)
www.pinnacle.co.uk

Pros: Project-based interface for rotoscoping and compositing; excellent selection of effects.

Cons: Minor interface flaws.

Min specs: PowerPC; Mac OS 8.5.1 or later; video card; FireWire recommended.

Price: £1,385 excluding VAT

Star Rating: ★★★★★/8.5

Rotoscoping is the art and science of painting directly on individual frames of a piece of film or video to create special effects – and there's no better tool for rotoscoping on the Mac than Pinnacle Systems' Commotion. Recently upgraded and completely rewritten, Commotion sports features that not only allow for new types of effects, but also greatly change the way the program fits into a production workflow.

As with previous versions, Commotion 3.0 lets you load QuickTime clips into RAM for full-screen, full-motion playback. But where previous versions opened and manipulated QuickTime movies directly, version 3.0 includes a complete project-management interface

that lets you edit non-destructively and take advantage of a full range of compositing effects.

Adobe After Effects users will feel comfortable with Commotion's Project and Composition windows, which support unlimited layers and provide full keyframe control over properties – such as position, scale, rotation, and opacity.

If you're outputting to a FireWire-based DV system, you can now preview your video on an NTSC monitor from within Commotion – you don't need to move video into an editing package to watch it at full resolution.

Rendering

Commotion has always had excellent real-time painting tools, but version 3.0's rewritten painting engine makes them even better. Its paintbrush tools offer improved sub-pixel rendering and a more comfortable feel. The 75 new effects-filters include Pinnacle's Primatte Keyer, Composite Wizard, and Image Lounge packages. The powerful cloning facilities now allow you to clone from one frame to another, and the automatic wire-removal brushes and natural-media effects tools remain excellent.

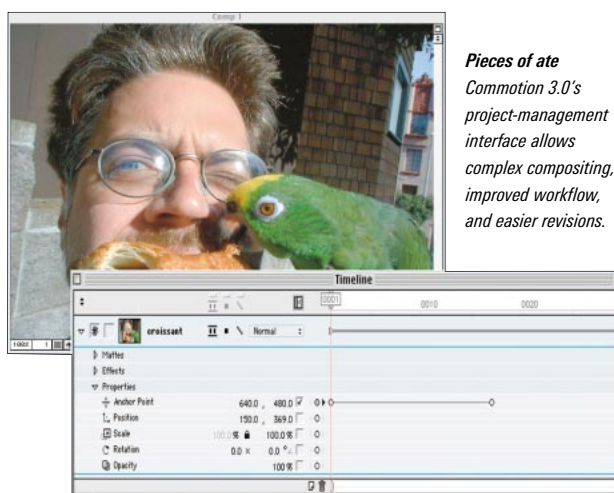
With the program's new project-management tools comes a fresh approach to painting. You can now paint directly into an individual QuickTime movie, or into a composite of several

movies. Also, a streamlined palette and set of controls make the Motion Tracking feature less cumbersome.

Macworld's buying advice

Commotion's new interface improves an already powerful product. In addition to facilitating smoother workflow, Commotion's new compositing facilities mean less time spent moving between Commotion and a compositing or editing program. If you're looking for powerful rotoscoping and compositing, then Commotion 3.0 is for you.

Ben Long



***Pieces of ate**
Commotion 3.0's
project-management
interface allows
complex compositing,
improved workflow,
and easier revisions.*



Database-driven Web site creator

**Lasso Studio 1.5
for Dreamweaver**

Publisher: Blue World Communications
www.blueworld.com

Pros: Makes implementing basic search tasks easy; SiteBuilder provides templates for typical cases; extensible to complex SQL databases.

Cons: Fairly tough transition to general ODBC databases.

Min specs: Dreamweaver 3.01

Price: \$299 download

Star Rating: ★★★★★/7.7

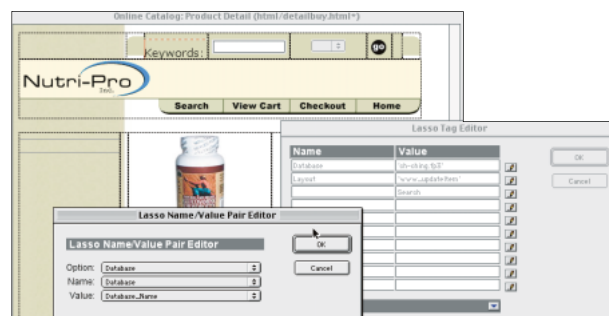
If you think creating a database-driven Web site requires hard-core coding, think again. Lasso Studio 1.5 for Dreamweaver, which lets you add database functions to Web sites, is simple enough for non-programmers to use. Without altering Lasso's user-friendly visual programming style, Blue World Communications has beefed-up the latest version and made it even easier to use. New features include SiteBuilder, a convenient set of templates for adding

database search functions, and Database Selector, which makes working with multiple databases a matter of a few wizard choices.

After installation, you access Lasso commands from within Dreamweaver. Lasso's straightforward LDML (Lasso Dynamic Markup Language) tags work with the included server-side application – Lasso Web Data Engine – which controls data-flow between a Web server, database, and Web client. Lasso comes with a Lasso server, but works with all common Mac-server software.

Lasso works elegantly. The upgraded Lasso Configuration Wizard identifies your database and its records and fields. To create a database search page, choose fields from the FormBuilder dialogue box, rather than hand-coding tags. Dreamweaver's Object palette includes several Lasso programming icons for manipulating fields and records. The SiteBuilder function is a misnomer, though – you use Dreamweaver to build sites and SiteBuilder's templates to add search pages to them.

Lasso requires considerably less database experience than other popular Web-database solutions – such as



Pervasive Software's Tango 2000, or 4th Dimension's 4D Server. Lasso also handles any ODBC-compliant database, but you can expect to do more work if you range beyond FileMaker and 4D. You can embed SQL queries into Lasso Web pages or use Lasso's LDML-to-SQL translation.


Visualize this

*Lasso Studio 1.5 for
Dreamweaver's visual
programming environment lets
you see how forms will look in
a Web browser as they are
created in Dreamweaver.*

Macworld's buying advice

Lasso Studio offers Dreamweaver users a great way to put a business product catalogue on a Web site. Version 1.5 refines the code converters and Configuration Wizard of 1.0, but retains the simple Lasso graphical approach.

Charles Seiter

 **Photoshop tutorial**

Adobe Photoshop 5 Interactive Seminar

Publisher: Eurosync Technologies
(00800 3876 7962)
www.eurosync.net

Pros: Offers solid grounding in key Photoshop skills; easy to follow; well designed; no VAT.

Cons: None.

Price: £155

Star Rating: ★★★★★/9.2

Software training courses are too often overpriced and under-planned. A £500 one-day course for any software title should furnish students with a knowledge platform upon which he or she can build more advanced skills. Many of the courses I've been on have failed in this because they try to cover too much ground.

A Photoshop course I attended was typical. What I needed was to master basic colour-manipulation and path-creation – but ended up with a rag bag of skills that enabled me to quarter-complete 12 Photoshop functions, rather than master just a few. It was a waste of time and money.

Eurosync Technology's Photoshop 5 seminar, on the other hand, is a value-for-money package that will furnish you with key Photoshop skills that £1,500 of external training would struggle to deliver.

This tutorial does what most courses should: rather than pitching itself at beginners or advanced users, it offers a solid grounding in key skills – in this case scanning and colour correction.

This seminar also steers clear of another common failing of many courses – the assumption of knowledge. It takes you from the most logical starting point: knowing which scanner to buy and what to do with it when you've parted with your cash.

Before launching into Photoshop's colour-correction functionality, it offers a sound grounding in colour and image theory, and an explanation of Photoshop preferences-setting for RGB and CMYK images.

Once this section of the seminar is complete, you can move on with confidence to learn how to master tonal correction, colour correction and the sharpening, cleaning and targeting of an image. The CD comes into its own with its tutorials on colour-correcting



Know how

The Adobe Photoshop 5 Interactive Seminar gives clear and simple lessons on many aspects of image manipulation – from colour correction to application preferences.

RGB and CMYK images. Throughout, the seminar employs scrollable text on one side of the screen to tackle the theory of what's under review – allied to a QuickTime movie on the right, to illustrate how theory becomes practice in Photoshop.

In the tutorials, though, this approach adopts yet another level: the movies stall until the pupil has clicked the correct option from the correct drop-down menu or dialogue box. This affords one familiarity with – and an understanding of – the steps and processes involved. A nice touch.

In just a couple of hours, I was comfortable using a histogram to analyze the colour and tonal qualities of images, and then using this to rid the images of colour-cast, using the Levels and Curves functions. Many functions

and windows that were alien to me now make perfect sense.

Macworld's buying advice

If you spend a fortune on software training then seriously consider investing in this and similar interactive seminars. For example, Eurosync Technologies also offers seminars on print preparation in QuarkXPress, the fundamentals of InDesign and Illustrator, and the compositing of images in Photoshop. Assuming these are of a comparable quality, then for just £155 per title (you pay no VAT, because these are educational titles), you can build-up a mini-training library that'll equip your staff with twice the skill that can be had from most courses – and for a fraction of the cost.

Sean Ashcroft

 **Cordless input device**

Cordless Trackman Wheel

Manufacturer: Logitech
www.logitech.com

Distributor: AM Micro
(020 7467 6050)

Pros: No mouse-cord tangles.

Cons: Compatibility issues.

Min specs: Mac OS 8.6; Mac OS 9.0.4; USB port.

Price: £49 (including VAT)

Star Rating: ★★★/5.2

My brain knows what it likes – and it didn't like this cordless trackball. My left and right hemispheres became bumbling wrecks after a few hours attempting to master this device. They didn't recover until I reverted to my trusty mouse.

Sadly, my working life is nothing but a series of mouse moves and clicks, and accommodating a new way of working was always going to be a tall order.

The Trackman Wheel is a two-button trackball with a scrolling wheel. It comes with a USB receiver that allows it to communicate with your machine. Logitech makes great play of the Web Wheel function. This can be selected

in the control panel that comes with the device. The Web Wheel pops up on-screen upon clicking the scrolling wheel. It's a sliced-cake arrangement of Web options – including Forward, Backwards and Favourites – that normally appear on browser title bars. Like so many of these fancy frills, it proved no handier than the orthodox method. Also, I couldn't get the trackwheel to work for love nor money.

Macworld's buying advice

If your livelihood is underpinned by mouse skills, then a trackball will slow you down significantly at first. If you can be bothered to put in the hours in order to hit top gear, then I guess that's fine.



But I couldn't – using a combination of two buttons and the trackball to create QuarkXPress pages was like ice skating in carpet slippers.

There are also compatibility issues. For instance, it won't work with any version of Mac OS 9 other than 9.0.4.

Sean Ashcroft



Cheap Web-animation tools

e-Picture 1.0

Publisher: Beatware www.beatware.com

Pros: Solid Web animation tool;

3D text; slicing tools.

Cons: Must open Export Wizard to see accurate playback; no export.

Min specs: Mac OS 8.5.

Price: \$199 from Web site.

Star Rating: ★★★★★/7.8

WebShocker 2.0

Publisher: RecoSoft www.recosoft.com

Pros: Inexpensive; transition effects.

Cons: Not vector-based; uneditable text; limited export controls.

Min specs: Mac OS 7.6.1

Price: \$40 download.

Star Rating: ★★★/5.3

To avoid being overlooked in the unsavory world of online advertising, a banner must spin, flash, or fly. Web animation tools make it easier to build eye-catching ad banners, but the leading tools – such as Adobe Photoshop 6.0 – cost upward of £139, and may be overkill for simple animations. Two less-expensive alternatives, Beatware's e-Picture 1.0 and RecoSoft's WebShocker 2.0, prove you don't have to spend your life savings to create effective Web banners.

Although e-Picture Pro and WebShocker focus on the same goal – quick, attention-grabbing animations – they differ at the most fundamental level. Like nearly every other Web-oriented graphics program, e-Picture Pro is vector-based while WebShocker, in contrast, produces bitmapped images whose pixels are applied permanently to the canvas. Even worse, the program doesn't separate its elements into layers, so selecting,

editing, or deleting text, photographs, and drawn objects is difficult. This is a serious design-flaw in a program designed to create images that change over time.

In an improvement over its predecessor, e-Picture 1.0, the current version adds a tool for creating 3D text. You can define the colour, lighting, depth, and rotation of text, which remains editable, and you can animate text along a path.

The program's animation tools are intuitive, if occasionally glitchy. Time-line and tweening tools let you specify an object's initial and final attributes – e-Picture Pro interpolates the transitions between the two frames. The program also has a useful visual-tweening tool that displays the path an object will travel as you drag it into a new position. This makes fine-tuning the speed and direction of an animation's movement easier.

You can view the animation at any time, by clicking on the Play button in e-Picture's Animation palette. But, the playback is jerky and – because the program must render each frame on-the-fly – it bears no relation to the speed of the final output.

WebShocker adopts a different approach to animation. Instead of using a timeline, the program requires you to build animations one frame at a time. Since there's no easy way to select objects and make minor adjustments from one frame to the next, this often requires starting from scratch each time. Fortunately, WebShocker's onion-skinning feature helps you line-up elements in different frames. And, a library of transitions – the closest thing the program has to tweening – lets you add canned effects.

You can now import native Photoshop and Illustrator files to e-Picture Pro,



preserving objects' layers and editability, and distribute the layers as an animated sequence or as separate bitmaps. WebShocker also imports native Photoshop files, but it does a decidedly clumsy job of handling layers – which it separates and places randomly on individual frames. Additionally, the program can't interpret vector information – including text – from Photoshop 5.0 or 5.5.

The most useful addition to e-Picture Pro comes into play when you exporting an animation. The Image Slicing tool lets you cut animations into pieces, which can then be optimized and exported separately for quicker downloads.

Macworld's buying advice

Both beginners and advanced users will find WebShocker's tools more frustrating than useful for all but the simplest animations. Though e-Picture Pro is more expensive and still a little glitchy, it offers a solid set of tools with enough flexibility and power to create relatively complex animations.

Kelly Lunsford

Flying logos

With e-Picture Pro's new 3D text tool, you can quickly create and animate 3D logos.



Cyber receptionist

Robson

Manufacturer: Robson Telecom
(01344 871 350)

www.robsontelecom.com

Pros: Cheap compared to a full-size PBX; helps filter unwanted calls.

Cons: Not customizable enough; Mac serial connection.

Min specs: A telephone line.

Price: £399 excluding VAT

Star Rating: ★★★★★/7.7

Robson brings the high-end telephony features of expensive switchboards into smaller offices – it's like a personal assistant for calls.

Robson has two sockets to connect to the outside world, and sockets for extensions or fax machines. When a call comes in, Robson will route any fax calls to the right line. Other calls are greeted and then passed onto the appropriate extension when the caller hits one of the keypad options. The caller ID is recorded, and Robson can announce the caller by name if it is on record, or by number as long as it's not been withheld.

Setting the system up wasn't that easy. The first problem was that my telephone line and computer are not close enough to each other. Next, was the fact that the Mac connection Mac is Serial rather than USB, though I'm assured that there is a USB-to-serial adaptor available.

The software is about as

straightforward as it can get, considering the complexity of the job. There's a pre-recorded voice, though your own greetings can be added. It would've been nice if it had more flexibility – the only option is a male voice.

Robson Telecom says it can provide custom voices, and a foreign-language version is on its way. Unfortunately, a custom voice is an expensive option.

Macworld's buying advice

For the money, you are won't find anything to match Robson. This kind of ability is usually found on big PBX switchboards costing thousands. There's room for improvement, but there are no terrible flaws.

David Fanning



Robson and a phone

Robson is a receptionist in a box, greeting guests and bouncing undesirable calls.



iMac speed boost

iMaxpowr G4

Publisher: Newer Technology
www.newer-tech.com

Distributor: AM Micro
(01392 426 473)

Pros: Faster performance, most notably in Velocity Engine-enhanced applications.

Cons: Expensive; installation problem with one of our test units.

Min specs: 233MHz-333MHz iMacs.

Price: £495 (excluding VAT)

Star Rating: ★★★★★7.8

The CPU may have the most influence on a computer's overall performance, but this isn't the only factor that determines how quickly a Mac runs. While a processor upgrade will certainly speed-up a Mac, it won't make your machine as frisky as a new Mac with a faster system bus and higher-performance video circuitry. Newer Technology's 433MHz iMaxpowr G4 offers a case in point. This upgrade increases the overall performance of the iMac's first four revisions and turns in Speedmark 2.0 scores nearly 50 per cent faster than those of a 233MHz Rev A iMac. Unfortunately, the iMaxpowr can't match the overall performance of a 400MHz Power Mac G4 because of the bottlenecks inherent in the original iMac's bus speed and poky video-circuitry.

Because Photoshop takes advantage

of the Power Mac G4's Velocity Engine technology, our iMaxpowr G4-equipped iMac fared far better than the same iMac with its original 233MHz G3 processor. Yet the 400MHz Power Mac G4 performed better still, thanks to its faster bus speed and video card. The iMaxpowr's extra 33MHz did pay off in our SoundJam encoding test, however – the iMaxpowr-equipped iMac bested the Power Mac G4 by seven seconds. And, as you would expect – since 3D gaming performance relies more on the graphics chip than on the processor – the iMaxpowr iMac produced a scant 2.6 frames per second (fps) in our Quake III test, compared with the Power Mac G4's 34.5fps.

Macworld's buying advice

Although the iMaxpowr upgrade offers noticeably better performance in everyday

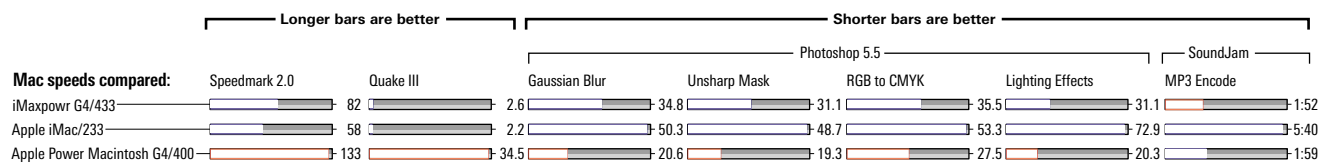


computing tasks, unless you're running an application that benefits from Apple's Velocity Engine technology, you won't see a breathtaking difference. If you don't depend on such enhanced applications, the iMaxpowr G3 is a better deal.

Christopher Breen

Upgrade card revs-up older Macs

Best results in test.



Behind our tests

Speedmark 2.0 scores are relative to those of a 350MHz iMac, which is assigned a score of 100. Adobe Photoshop results are in seconds. SoundJam results are in minutes:seconds. Quake III results are in frames per second. We tested each system with Mac OS 9.0.4, 128MB of RAM, a default system disk-cache of 4MB, and virtual memory enabled for all tests except SoundJam. We set displays to 1,024-x-768 pixels and 24-bit colour. We performed Photoshop tests with a 50MB file; we set Photoshop's memory partition to 80MB and Photoshop History to Minimum. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds in length, and converted it using a default setting of 128Kbps in SoundJam 2.2. Speedmark is a suite of common tasks. Macworld Lab testing supervised by Jim Galbraith



Web stats made easy

Funnel Web 4 and Enterprise

Publisher: Active Concepts
www.activeconcepts.com

Pros: Fast; easy to get started; excellent range of features.

Cons: No customization of graphs.

Min specs: PowerPC; Mac OS 7.6; 64MB RAM; eight-bit video.

Price: £249; Enterprise Edition, £749 (both prices exclude VAT).

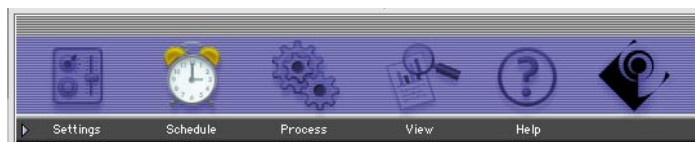
Star Rating: ★★★★★8.1

Anyone who's ever developed a Web site for a client knows they are obsessed with the number of visitors to a site and which days are most popular.

Fortunately for developers, all Web servers produce copious log-files detailing every request made to the server, and every element sent out. But these log files are gibberish to those not in the know, and can also get pretty expensive – uncompressed, a week's worth of Macworld's raw logs is a 100MB text file.

While there are a number of freeware and shareware programs around, Funnel Web is one of the leading professional-analysis tools, and the only major cross-platform tool. This makes it an obvious choice for anyone hosting sites on a Mac, for example using WebStar. But it's also useful if you want to run your analysis on a Mac, even if your site is hosted on a Unix or, dare I say it, Windows NT box.

You can start analysis simply by drag-&-dropping a log file onto Funnel Web –



Info boon

Funnel Web is highly customizable, so you only output the information that's useful to you.

the application will automatically determine the log format. You can implement an AppleScript to automate the retrieval of files from a server (an FTP application is built in), passing files to Funnel Web, and exporting the reports.

The number of statistics Funnel Web can produce is extensive, and gives the sort of mind-boggling detail that only a statistician could love. But you can also produce QuickReports, which give just the core facts. Full reports also produce the graphs that IT managers adore.

Post-processing options include uploading the reports back to the server – so that clients can see the results and email notification – and the saving of reports as PDFs or delimited text.

The Enterprise edition of Funnel Web adds a number of features, such as the tracking of advertising clickstreams.

The Enterprise edition is the first major log-analysis tool to analyse streaming media, with special reports giving details of the most popular clips.

Macworld's buying advice

While there are freeware analysis tools around, Funnel Web is a large step-up in terms of sophistication and flexibility, and it produces more attractive reports. The Enterprise Edition offers little more in the way of functionality, but is still valuable if advertising analysis and streaming-media analysis are needed.

Martin Gittins



Maps suite

Maps In Minutes – British Isles

Publisher: RH Publications

(01840 212135)

www.mapsinminutes.com

Pros: Five products to suit all uses and pockets; incredible attention to detail; separate Illustrator and Freehand formats.

Cons: Some licence restrictions.

Min specs: Available RAM: 12MB (Economy), 20MB (Classic), 24MB (De Luxe Vector), 48MB (De Luxe Full), 24MB (Terrain).

Price: Economy, £99; Classic, £199; De Luxe Vector, £450; De Luxe Full, £550; Terrain, £115. All prices exclude VAT.

Star Rating: ★★★★★/8.8

There are many reasons why you might need a digital map of the British Isles, or a part of it. Perhaps, you want to place a location map on your Web site, or use a road map in a publication. Whatever the reason, Maps In Minutes has the answer.

Maps are all custom-burnt to CD-ROM in either Adobe Illustrator or Macromedia FreeHand format. This last point highlights the attention to detail shown by the publisher, which is aware of the shortcomings of trying to convert from one format to the other. Map sources are about as good as they get, and include the AA, and the UK Hydrographic Office.

All five packages share certain traits. Vector overlays are presented in numerous layers making them easily editable, while terrain images are supplied in RGB TIFF format for opening in Photoshop or similar apps.

The differences are in terms of scale and detail. The most basic – Economy Edition – offers the whole of the British Isles in 1:5 million scale, plus inset maps of Guernsey, Jersey and the Scilly Isles. And, this sub-£100 product boasts over 70 layers, including two-coloured population levels, motorways, A roads, airports, longitude/latitude lines and naming of all major towns and features.

The mid-range Classic Edition offers far more: three scales (1:1/2/5 million), a dozen individual 1:1-million scale region maps, and increased mapping detail with almost 100 layers that include dual



Well mapped-out

Maps In Minutes' Deluxe Full Edition includes land and sea terrain-contours, cities, towns, roads, ferry routes, motorways and all elements for creating the keys.

carriageways and road numbers, motorway junction numbers, service areas and ferry routes. A nice touch is the addition of a road mileage chart – in effect, almost everything a serious cartographer would need.

There's quite a step-up to the Deluxe Vector Edition, both in terms of features and price. In addition to the Classic's facilities, there are 13 regional maps in 1:750,000 scale that contain far more detail, including B roads and tourist information, plus separate maps of weather forecast areas and sea contours. A comprehensive set of items for map keys is also included.

The other two products feature digital terrain-data: the low-cost Terrain Edition offers 1:5 million-scale maps with over 20 different 300dpi backgrounds, but minimal overlay information. The top-of-the-range Deluxe Full Edition has all the

1:1/2/5 million scale maps, including individual regions at 1:1 million and 1:750,000 scales, plus dozens of backgrounds with height shadings and contoured colours for land and sea.

Macworld's buying advice

The quality of mapping is extraordinary, and technical support is free. The licence is a little restrictive in areas – such as only 640-x-480 pixels on Web sites – and there is an annual update fee of half the collection's cost, but that's to be expected given the frequent minor amendments to maps. It's worth checking the samples and licence on the Web site before buying.

If you need UK maps, from basic through to the most complex, Maps In Minutes offers an unrivalled collection of products.

Vic Lennard



Colour-correction tool

LaCie Blue Eye

Publisher: LaCie

(020 7872 8000)

www.lacie.co.uk

Pros: Easy to use; quick; USB link for some monitors; accurate results.

Cons: Not all monitors benefit; expensive for single-monitor use.

Min specs: New LaCie monitor recommended.

Price: £365 excluding VAT

Star Rating: ★★★★★/7.2

Working with colour leaves many designers seeing red or feeling blue – especially when it comes to accurately matching final output colour to the tints you see on screen. What starts off as viewing a project through rose-tinted glasses can quickly put you into a black mood unless you break out the colour-calibration tools (*Enough with the colour puns already – Ed*).

Enter the LaCie Blue Eye version 2.0 hardware calibrator for monitors. New to the upgrade is not only the all-important USB cable, but lighting controls to boot.

The Blue Eye looks like a stethoscope with suckers. It clips onto the glass screen of the monitor where it measures colour levels. The collected data is then fed back into the colour-calibration software, and repeated until the colour levels are correct and a ColorSync profile is created for that monitor. It's a much better, far more accurate system than the one usually deployed by designers – simply gazing at the screen and twiddling colour controls until the thing looks right. It also takes into account the different lighting conditions that users are working

under, as colour looks different if your screen is viewed in sunlight or under fluorescent tube lighting.

Ambient lighting awareness is simply handled by pointing the Blue Eye away from the screen and hitting a software button. This lets both the Blue Eye and software compensate for locations with a lot of natural light, such as a monitor placed so it's facing a window.

Users of the LaCie monitor range – the electron19blue, electron22blue, and electron22blue – are in the pink with the Blue Eye, as it leverages the USB connector that forms part of the Blue Eye hardware, letting the monitors automatically correct themselves based on information provided by the Blue Eye. A handy manual-override is provided so you can choose your own calibration – although that kind of defeats the object.

However, you don't need to be packing a LaCie monitor to use the Blue Eye – although it's crippled somewhat, in that you can only use software calibration



and not the USB cable. LaCie also further colours the water by only selling it to registered LaCie monitor owners, although if you have one in your studio, there's nothing to prevent you calibrating the rest of the displays.

Macworld's buying advice

The Blue Eye 2.0 puts monitor calibration sharply in focus, and every aspect of the device works a treat. However, the fact you can't use it with other monitors and enjoy full functionality – and that goes for older LaCie monitors as well – is a minus point. It's also expensive for a single monitor – those with multiple monitors in a studio will love it, though.

Daniel Underwood



Essential MP3 player

SoundJam MP Plus 2.5.1

Publisher: Casady & Greene
www.soundjam.com

Pros: Excellent full-featured encoder; converts external sources to MP3 format; visual plug-ins; links to CDDB for CD information; support for Internet streaming and broadcasting.

Cons: Forget about the karaoke mode.

Min specs: Mac OS 8.1; 6MB RAM.

Price: \$39.95 (£26) download from Web site.

Star Rating: ★★★★★/9.1

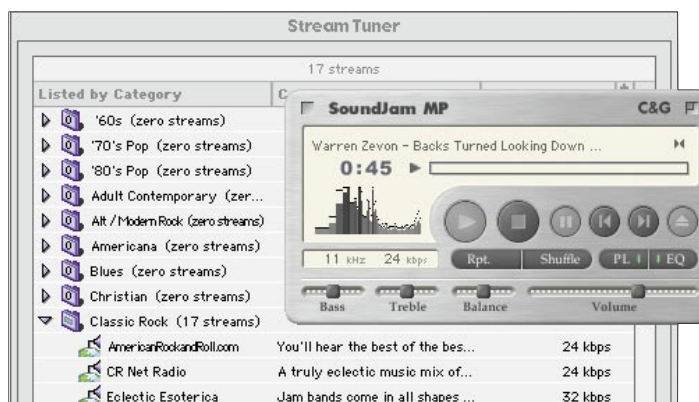
Few audio technologies have had the dramatic effect of MP3 – not even Sony's MiniDisc. Perhaps it's because MP3 has no master as such (it's an ISO standard) and doesn't rely on any particular medium. It's as at home on a computer as it is on a small stand-alone player. But you need good software to encode MP3 files, play them and to offer a slew of nice add-on facilities. Where MP3 is concerned, that piece of software is SoundJam.

SoundJam is the Microsoft Office of MP3 software. For starters, it's probably the easiest and best MP3 encoder available on the Mac. Pop a CD into the drive, watch SoundJam automatically connect to the CDDB online database to get album and track names, select the required tracks and hit "convert".

Features include variable bit rate (VBR) encoding, where SoundJam decides the rate according to the quality you choose, plus smart high-end frequency reduction, and a file-size reducing filter for frequencies below 10Hz. You can even plug a cassette player into the Mac's mic socket and use the Record-to-MP3 facility to transfer old recordings.

Improvements in the current version include support for the new Dual Processor G4 Power Macs, the ability to encode at lower bit-rates (below 32Kbps) and sampling rates (down to 8KHz), plus conversion to WAV files for better cross-platform compatibility.

SoundJam's player is also one of the best around, courtesy of almost bottomless drag-&-drop playlists and the ability to recognize and play any file, irrespective of the file creator. The built-in



Play that tune

SoundJam MP Plus now includes the ability to broadcast over the Internet and has the Kerbangoo Internet Stream Tuner built-in. The player even shows the record title.

ten-band graphic EQ is pretty well standard – but the cut-down version of Arboretum Systems' Realizer, which works on a song's sonic characteristics, is a nice extra. It even has a Playlist Composer that uses existing playlists, or folders of MP3s, to create new playlists according to your criteria. Also, each song can have a custom start/stop time, a different level and an equalizer preset. The latest version sports an enhanced playlist with hierarchical folders – much like the Mac's Finder.

The player also supports streaming MP3 from the Internet, including two new features: Internet Stream Tuner, that finds music over the Internet automatically; and Internet Broadcasting, for streaming music from your computer using a re-broadcaster – such as FlyCast, ShoutCast or IceCast. Powerful stuff.

For those who are lucky enough to own a stand-alone MP3 player, SoundJam can control most Rio and DMP machines, including the DMP Jukebox.

Macworld's buying advice

It really is very difficult to fault SoundJam MP Plus. The open nature of its plug-ins means there are plenty of third-party skins and visual effects, aside from the standard ones. And all updates from version 1.0 have been free of charge – on a product that costs less than £30.

More to the point, SoundJam MP Plus works well in all departments – apart from one, the karaoke feature. But that's the only negative point on a quality product that goes from strength to strength. There's a 14-day trial on *Macworld's* cover CD this month.

Vic Lennard



Digital projector

V600 Zoom

Manufacturer: Kodak
(0870 606 1031)

Pros: Cheap; easy to use.

Cons: Heavy compared to more expensive models.

Min specs: A video-out connection.

Price: £1,699 (excluding VAT)

Star Rating: ★★★★★/8.5

The Kodak V600 Zoom is one of the cheapest projectors available.

Low price usually means back-breaking weight – but not in this case. Even though it's double the size and weight of the smallest projectors, it still weighs only 3.4Kg (7.5lbs). This makes it small enough to take to meetings – and it comes with a handy carrying case.

The projector market used to be split between big, bright boardroom-projectors and smaller – but dimmer – portables. This model bridges the gap.

Setting up the V600 is child's play. Digital projectors often need tweaking – especially with text-heavy presentations. The analogue image from the computer needs to be converted to a digital picture. This doesn't always go smoothly, but the V600 handles this easily, even if you switch resolution mid-presentation. Just about any resolution can be displayed, though for optimum results a 800-x-600-pixel resolution is

best. This is the maximum natural resolution available, but if you switch to 1,280-x-1,024 pixels it will interpolate the image. This will affect text visibility, but it works fine on images. The V600 takes a couple of seconds to settle into a new resolution, but it's much quicker than doing it manually.

The technology used to display the image is LCD-based. Most of the other models in the Kodak range use DLP (Digital Light Processor) chips. The DLP chips make smaller models possible because LCD projectors need three coloured-panels for the component colours. DLP-based projector are also less likely to fade in the corners, because the image is constructed by bouncing light off a chip. LCDs have a habit of fading over time, but the technology is getting better. Unfortunately, I haven't got a spare five years to test the V600.

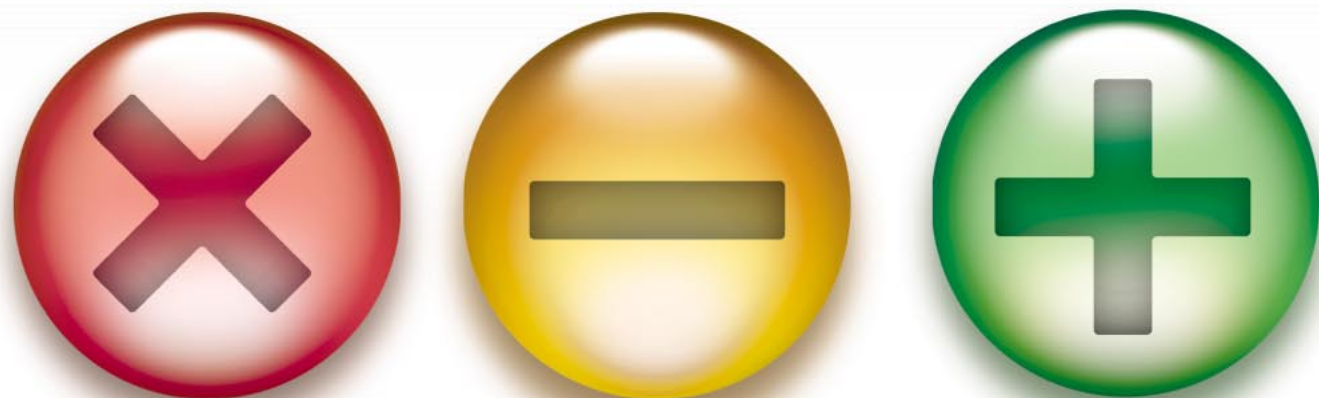


Macworld's buying advice

There are many high-end projectors that will out-perform this model – such as Epson's lightweight £2,299 EMP-500c. However, people and companies who don't need to worry about money are few and far between. Smaller models with similar abilities cost extra £2,500, making the Kodak V600 Zoom a very attractive proposition indeed.

David Fanning

- 1 : Mac OS X: The full story
- 2 : Mac OS X: Beta survival guide
- 3 : Mac OS X: Macworld Lab report



Are you X-perienced?

The next-generation Mac operating system has landed... sort of...

Apple's next-generation operating system may not be finished yet, but it's taken its first big step forward with the release of an early version of Mac OS X. This is a "public beta" (the final stage of development before a product's release), meaning that Apple is letting us get our hands on a version of Mac OS that's definitely not fully formed but which does give us the chance to learn roughly what the future holds for us all.

For years, Mac fans have beseeched Apple for a modern operating system: not just more spaghetti code piled on top of the ancient OS 8 foundation, but something state-of-the-art and rock-solid. We wanted the stability of Unix and the good looks of a Macintosh.

OS X is unlike any other operating system in Macintosh history, and in its current condition, it requires a great deal of tolerance from the Mac faithful.

Running a pre-release OS is like rafting down an uncharted river — there's no telling what danger lurks around the next bend.

But running the OS X beta has its upsides, too — not the

least of which is a sneak peek at an operating system that will soon radically reshape your Mac experience. In these articles and in future issues of *Macworld*, we'll show you how to prepare for and install the beta to minimize your risk, and how to navigate the rapids and boulders as you explore. We've also speed-tested applications running under OS X, and compared them to OS 9 speeds.

The release of this OS X public beta offers tangible proof to us all that Apple is working toward a stable, modern operating system — with pre-emptive multitasking, protected memory, multiprocessing and multithreading. These advances may sound boring, but they'll make your life a whole lot smoother and faster.

Perhaps most importantly, Apple also gets the Mac's most-serious, hard-core users to put OS X to the test before it's officially released. This beta should mean less bugs when the polished version of Mac OS X ships early next year. Remember that beta versions are buggy — expect incompatibilities, crashes and re-installations. But for those of us willing to put up with the pain, OS X offers a real hands-on experience with tomorrow's Mac OS.



5 reasons to install Mac OS X Beta

1. One day, all Macs will work this way. Like it or not, Mac OS X is the future of Macintosh. Refusing to upgrade will eventually lock you into old software and obsolete Macs. Don't put off learning. Be ready for the real thing early next year.
2. You'll get a chance to try out new features and complain to Apple about the ones you don't like before they're set in stone.
3. It's easy to switch back and forth between OS 9 and Mac OS X, so if OS X isn't working for you, you can always just ignore it.
4. You'll get to try out a slew of new Mac OS X-native applications that will be in beta testing at the same time as Mac OS X.
5. PowerBook users will marvel at how quickly OS X wakes up from sleep — in only a few seconds.

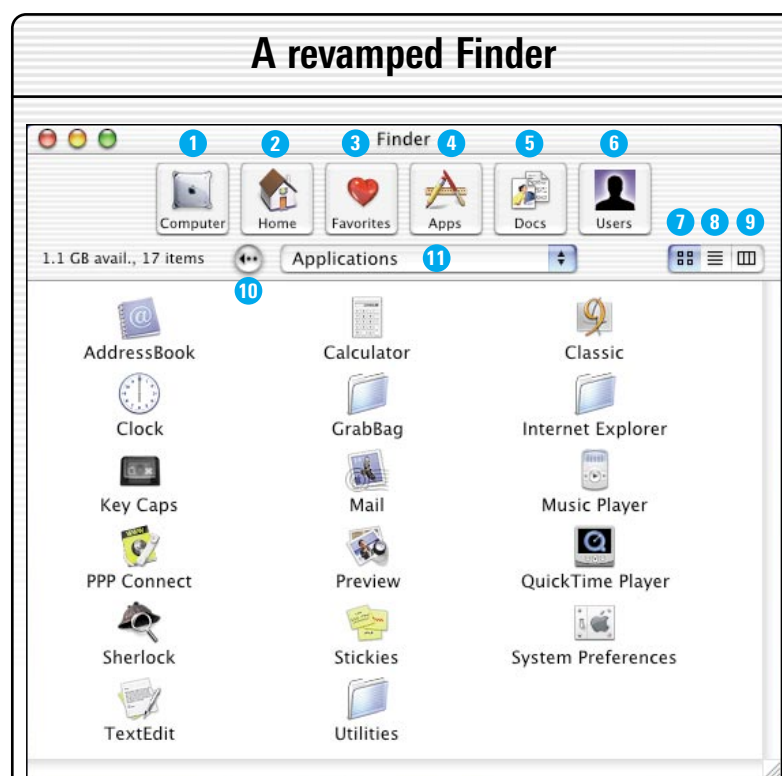
5 reasons to avoid Mac OS X Beta

1. It's a beta. Parts of it aren't going to work right, some features aren't working at all (eg. AirPort), and there's always a chance it could do something to your data.
2. You have to pay £25 for software that's unfinished and expires next May.
3. Classic mode allows you to run all your Mac OS 9 applications, but in practice it's weird and a bit unstable. As a result, you'll probably need to switch back to Mac OS 9 whenever you need to do a lot of heavy work in a classic application.
4. Not only are most applications not Mac OS X-native, most of the extensions and utilities you use to enhance and personalize your Mac aren't there yet, either.
5. Got something other than an original G3 or G4 Mac? Got one of the original PowerBook G3s? Well, forget it. Mac OS X isn't made to work with your system at all.

Mac OS X: The full story

By Jason Snell, Stephan Somogyi, and Jeff Pittelkau

Here's a complete overview of Apple's new operating system – from Aqua to pre-emptive multitasking



The Finder's window has a row of buttons at the top, reminiscent of Mac OS 9's Sherlock 2 interface. If you click on one of these buttons, you'll be taken to a specific location on your Mac:

1. The Computer button shows available drives and your network connection.
2. Home takes you to your home folder.
3. Favorites leads to a collection of commonly visited parts of your Mac.
4. Apps leads you to the home of all your programs.
5. Docs is where you store your documents.
6. Users leads to the folders of all the people with whom you share your Mac.

Also on the window are three buttons, which let you switch among three different ways of viewing the contents of a Finder window. The Icon and List views (7 & 8) are basically the same sorts of view your Finder has today; the Column (9) view is a multicolumn window that lets you view several levels of a hard drive at once. When you click on a folder in a column list, the contents of that folder are displayed in the next column to the right. If you click on a file, the Finder will try to display a preview of what's in that file.

Below the row of large buttons is a "back" button (10) that functions just like its equivalent in a Web browser. The pop-up menu (11) displays your current location; if you click on it, it displays other locations you've viewed recently.

Apple knew it had to do something. The company knew that the Mac OS, built layer by layer atop the foundation laid with the release of the original Mac back in 1984, was running out of room to grow. The early-eighties Mac OS foundation couldn't provide modern features, such as pre-emptive multitasking and memory protection, that users were starting to demand (and that Microsoft was threatening to provide).

So, in the early nineties Apple set out on a quest to find a new operating system to replace the Mac OS. Here's the story of the end result of that quest: Mac OS X, which made its public debut at Apple Expo 2000 in Paris (see News).

Failed first steps

First came Copland, the operating system that was supposed to drastically alter both the look and the underpinnings of the Mac OS – and would cause a lot of compatibility problems. Copland was also supposed to pave the way for a revolutionary (and far-off) update called Gershwin, which would offer all the conveniences of a modern operating system.

The Copland/Gershwin project was continually plagued by delays, and Apple eventually killed it, operating under the assumption that Copland could never be finished. After that problem-plagued project expired, Apple briefly considered Be's BeOS, a still-under-development modern operating system. Instead, Apple bought Steve Jobs's company, NeXT, and its operating system.

Not only did buying NeXT bring Jobs back to Apple, but it also allowed Apple to create Rhapsody – a powerful OS based on the NeXT OS. In Rhapsody (*Gershwin, geddit?*), old Mac applications run in the Blue Box – basically an emulation of the old Mac OS. To take advantage of all the new OS's features, developers would have to rebuild their applications essentially from the ground up in the Yellow Box, the NeXT development environment.

And that's where Rhapsody stalled: key developers, such as Adobe and Macromedia, didn't want to spend several years developing applications for an untested operating system that almost nobody was using.

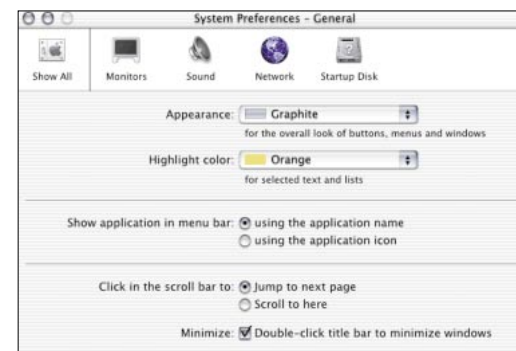
Instead, Mac developers wanted their current Macintosh applications to run in a modern OS environment without being wholly rewritten. That's just what Mac OS X is supposed to deliver.

The new interface

Mac OS X also is an opportunity for Apple to revamp the Mac interface that's been evolving over the past 15 years. While the Aqua interface represents a major evolutionary step away from the current Mac interface, OS X is still recognizably Macintosh. The Mac menu bar remains intact along the top of the screen (although there's now a Go menu alongside File, Edit, View, and Special), and at first glance most windows look like traditional Mac windows.

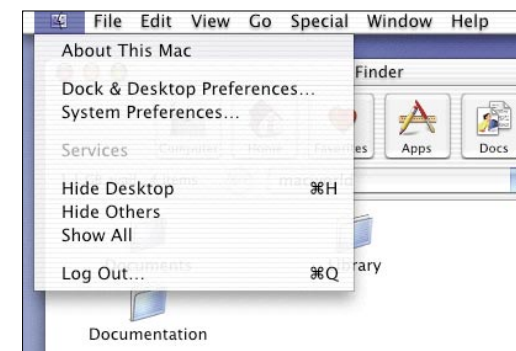
But if you give Aqua a closer examination, you'll discover a host of artistic touches that elevate this new interface above its predecessors. Today's technology allows Apple to make enhancements that simply couldn't be included before now.

In the current Mac interface, buttons that can be pushed by pressing the return key stand out because they



NEW LOOK! Mac OS X: General Preferences

The General preferences pane is a mixture of interface commands. You have two Appearance options: if you move from Aqua to Graphite, all the coloured buttons turn grey – Apple's concession to graphics pros who didn't want the coloured interface elements to get in the way of their work. From here, you can also choose whether the leftmost menu in the menu bar is the name of the currently running application in bold or just that application's icon. Likewise, you can set scroll bar behaviour, the text-highlight colour, and whether double-clicking on a window's title bar will minimize that window.



NEW LOOK! Mac OS X: Window Fade

This screenshot shows the upper-left corner of the Mac interface. The Apple Menu is gone, replaced by an application menu. The Desktop's application menu lets you set some system-wide preferences, as well as log out. In every Mac OS X-native application, the Quit command has moved to this menu. In addition to the smooth, anti-aliased text on display here, it shows the transparency of Mac OS X menus (you can see through just below About This Mac to the red-yellow-green window buttons beneath). There's also a very cool "fade-out" effect when a menu goes away.

Apps and docs unite: a look at Mac OS X's Dock

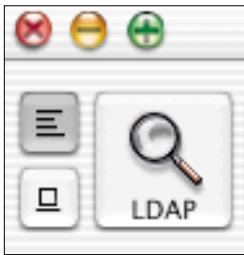


Perhaps the most radical addition to the Mac OS interface in Mac OS X is the Dock. This is a strip that lives at the bottom of your screen and displays the contents of open windows (you can even opt to have it appear only when you move the cursor to the bottom of the screen. Each item stored in the Dock has its own icon, which can be a thumbnail view of the contents of that item. Dock icon can show extra info – for example, a mail program's Dock icon could appear differently if you had new mail waiting. Clicking on an item in the Dock automatically opens its window in your workspace.

1. A triangle indicates that an application is currently running. All running apps appear in the Dock, as well as any other apps you've dragged into it. 2. Mac OS X's built-in email program features full support for HTML mail, mail rules, and other advanced features. When you look at the program's icon in the Dock you can see how many new messages are waiting for you. 3. The Dock's magnification feature lets you minimize clutter without sacrificing usability. When you move your cursor over a part of the Dock, icons get bigger and pop over the top edge. 4. Mac OS X comes with native versions of Sherlock (for finding items on your hard drive or on the Internet) and StuffIt Expander (for decompressing items you download off the Net). 5. Instead of a Control Panels

folder, OS X offers an application called System Preferences, from which you can control various aspects of Mac OS X's behaviour. 6 & 7. Multimedia is not ignored in OS X – Apple has created a Mac OS X-native version of the QuickTime player (6), and has replaced the old AppleCD Audio Player with a new combination audio CD and MP3 Player (7). 8. Classic is an OS X application that runs Mac OS 9 inside it. Once Classic is running, you can run Mac OS 9 apps right inside Mac OS X. 9. Hickory-dickory Dock. Run your mouse up Apple's new Clock application and you can actually see the time from within the Dock itself – complete with an optional second hand.

10. Mac OS 9 apps also show up in the Dock. That way, it's easy to see all programs that you're currently running, whether or not they're Mac OS X native. 11. Items to the left of this line are applications; items to the right aren't. You can also click on this line and drag it up or down to make the Dock larger or smaller. 12. This icon represents a Web link; click on it and you'll be sent to a Web page. 13. Any document you drag to the Dock appears down here, as do any windows you minimize by clicking on the yellow button with the minus symbol in it. 14. This wire basket is the Mac's new Trash can. Drag items here if you want to trash them – or just hit ⌘-period in the Finder.



NEW LOOK! Mac OS X: buttons

At the top-left corner of every window are three brightly coloured circles (red, yellow, and green) that Apple says were designed to evoke a traffic light. These buttons let you control what happens to the active window. When you move your mouse over them, they reveal their functions. The leftmost, red circle closes the window; the middle, yellow one minimizes it (sending it to the new Dock); and the right, green button maximizes the window.

have a thick line drawn around them. Most longtime Macintosh users have figured this out, but it's an interface convention lost on many novice users. In Mac OS X, you can't miss the default button – it's blue, and it throbs brighter and darker while waiting for your command. If the bright blue puts you off, or interferes with your delicate colour-management system, you can change it to a far more sober Graphite.

Each window casts a faint shadow on whatever is behind it – and that shadow is partially transparent, making your desktop feel remarkably three-dimensional. Every pull-down menu and dialogue box is partially transparent, showing a hint of what's behind it. When you let go of your mouse, menus don't simply disappear – they fade away. And all Mac OS X text is anti-aliased, featuring smooth edges that are much easier on the eye than the old-fashioned jaggy type.

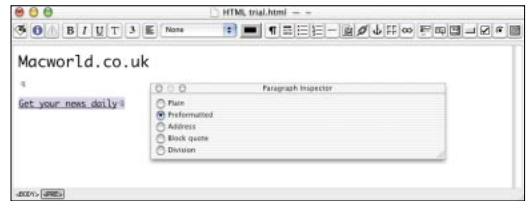
Just about everything you do with your mouse in OS X has an immediate response. If you drag a window around, the entire contents of that window move. Similarly, when you resize a window, you actually see the size of the window change as you're dragging.

Major memory advance

The most overdue operating system feature to be included in OS X is protected memory. In an operating system with protected memory, each application accesses only its own space in memory and doesn't touch the memory being used by other running applications, or the OS itself.

Picture your Macintosh today. You're working in Photoshop, when all of a sudden, everything grinds to a halt because your Web browser has crashed while trying to download a large file in the background. Even though Photoshop is not at fault, you are forced to reboot your Mac and pray that you saved your file recently.

In a system with protected memory, such as OS X, things are different. When an application crashes, it leaves all other applications up and running.



NEW! Mac OS X: HTML.Edit

OS X comes with HTML.Edit, a sort of SimpleText for HTML. It's got a peculiar interface, which is harmed by floating palettes that have a tendency to sink beneath the window you're working in. But this is a remarkable direction for Apple, because it apparently means the company is planning on including a lightweight WYSIWYG Web-page editor with its operating system. HTML.Edit even has support for form elements – nothing to sneeze at.

Pre-emptive multitasking

With Mac OS X, Macintosh users will finally be able to take advantage of pre-emptive multitasking. While you've been able to run more than one application on your Mac since the days of the Switcher and MultiFinder, that's only been possible via a mechanism called co-operative multitasking.

Put simply, right now your applications co-operate with each other to share the power of your Mac's CPU. Each open application can use the CPU for as long as it wants, and all other applications wait patiently in limbo in the meantime.

With pre-emptive multitasking, the operating system acts as supervisor, doling out access to the CPU. Every app gets a turn, but none get to pig out and take over the CPU completely. And some applications are more equal than others: the OS determines which goes first, based on a complex system of priorities.

The benefit to you is that you'll no longer have to stare at your screen while an application running in the background takes your computer's processing power away from you. It also means that you'll be able to do things like play QuickTime movies without dropping frames while you're reading your email, editing an image in Photoshop, or even serving Web pages.

Virtual memory

While the current Mac OS offers virtual memory, it's nothing like the modern virtual-memory system built into Mac OS X. If you've ever had a Mac application quit on you because it doesn't have enough RAM allocated to it, you know the joys of selecting an app in the Finder, choosing Get Info, and increasing its allocation.

With Mac OS X, that sort of trick is a thing of the past. You'll be able to launch your applications as you normally would, and Mac OS X will intelligently allocate as much virtual memory as those apps need to run. You won't even need to preconfigure how much hard-disk space to allocate for virtual memory – the operating system will do that itself, dynamically.

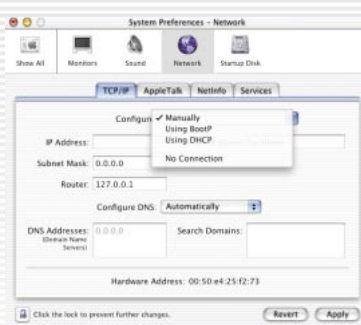
Multithreading and multiprocessing

When a program is multithreaded, essentially that means it can walk and chew gum at the same time. For example, a fully threaded version of Photoshop could theoretically operate a scanner to create a new image-file and run filter calculations on one or several open images simultaneously.

In Mac OS X, the Finder will be more fully threaded, so you'll be able to do things like move a window containing a QuickTime movie while the movie continues to play. You'll also be able to pull down menus and move icons while other applications continue to update their windows.

This new OS will also support multiprocessing in ways today's Mac OS just can't. When Mac OS X arrives, today's

Mac OS X: Networking



The Network pane (left, top) doubles for the TCP/IP and AppleTalk control panels, among other things. From here, you input all network settings. From the Services tab (observed), you can turn on Apache, the built-in Web server, and configure the root folder of that server. In the lower left corner, you can see that, in order to modify many of the preferences, you must first enter an administrator password (or re-enter, if you're the administrator).



Goodbye File Sharing control panel, hello Sharing pane (left, bottom). From here you start up File Sharing – but be warned – this is TCP/IP-based sharing only. OS X doesn't share files via AppleTalk. More intriguing are the checkboxes below – you can turn on remote Telnet access, allowing remote users to log-in to your Mac's new Unix command-line interface (and do a great deal of damage, potentially – turn this

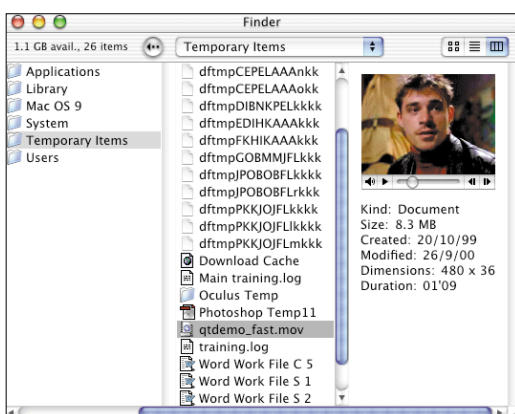
item on at your peril). You can also turn on Mac OS X's built-in FTP server, allowing file-transfer access for a wider range of platforms and users than Apple's standard File Sharing.



NEW LOOK! Mac OS X: System preferences

This new application, System Preferences, is the Mac OS X equivalent of the Control Panels folder. But these items are all Apple-supplied, and third parties don't get to drop their own controls in this application. The strip at the top is for commonly-used items; you can drag any of the icons from below up onto the strip, and they'll stay; drag them out and they'll disappear from the strip.

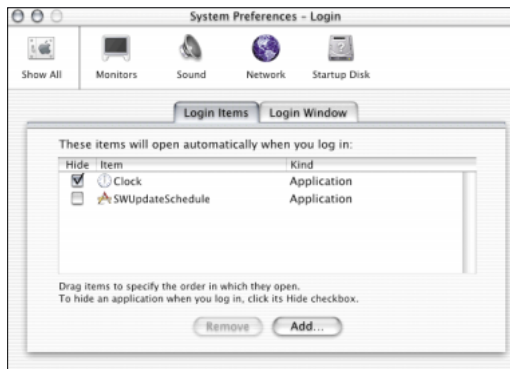
dual-processor G4s will really come into their own, because Mac OS X supports symmetrical multiprocessing. This means it treats the available processors equally, balancing the load of your system over the whole array.



NEW LOOK! Mac OS X: QuickTime Player

The new QuickTime Player (top) looks a lot like the old QuickTime Player – which makes it all the more reassuring. There are some changes, however, that make it a lot neater. The Player's volume wheel has thankfully become a slider, and there's now a TV button rather than a drawer that slides out to present you with QuickTime TV channels.

The new-look Finder might not be to everyone's taste, but it does offer a very useful preview column. Amazingly, you can play these QuickTime-movie previews right here in the Finder.



NEW LOOK! Mac OS X: Login

Login is the equivalent of the Startup Items folder under Mac OS 9. Drag items into this window from the Finder, and they'll start up when you log in to the Mac OS X system. You can also choose whether the application auto-hides on startup, or is visible.

By virtue of its internal design, Mac OS X is inherently multiprocessor-aware, and all of its functions can run on multiple processors, unlike those of the classic Mac OS. In day-to-day use, multiprocessor machines running Mac OS X should feel snappier than single-processor machines.

Applications specifically written to take advantage of multiprocessing will have complete access to the processors. The OS can assign each individual task these apps undertake to a different processor, balancing the load and using processor power as efficiently as possible.

But even if a Mac OS X program wasn't written with multiprocessing in mind, it will benefit. The operating system can still assign different programs to different processors, meaning that program A can run on one G4 while program B toils away on the other.

In addition, programs don't work in a vacuum – they're working in conjunction with the operating system at all times. And since Mac OS X will be multiprocessor-savvy, it will balance all of its own work (like moving windows and scrolling) across processors.

The programs you get

The Mac OS X beta comes with several new versions of familiar programs, as well as a few new entries. Several programs have been modified to take advantage of Carbon, a system that transforms old Mac programs into OS X-native applications. In addition to Microsoft Internet Explorer 5, Mac OS X also provides native versions of Stuffit Expander and QuickTime Player (see left).

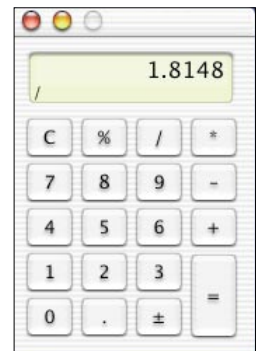
New apps include Mail, an Internet email-client application with support for styled mail, mail rules, multiple mailboxes, and more; Address Book, a personal information manager with support for finding people via the LDAP Internet protocol; and Music Player.

Music Player is a combination CD and MP3 player. At this point, it's not fully functional – playlist support is limited, it won't look-up CD track information via the Internet's CDDB database, and it doesn't even recognize the ID3 system of embedding song info in MP3 files. These points should be addressed by the full release date.

X marks new spot

But Mac OS X is much more than a fresh coat of paint on the Mac's user interface and much more than a typical operating-system update. During the next year, both the new Aqua interface and the technology behind it will begin to change the ways we experience our Macs.

It will take time for these changes to catch on, and only time will tell how favourably – or how quickly – the Mac community will respond. The journey has begun.



NEW LOOK! OS X: Calculator

The new Calculator may be written in Cocoa, but in terms of functionality it's the same old stupid calculator Apple's been shipping with the Mac OS for years. Is it that hard for Apple to ship a simple calculator with the Mac OS that does square roots and other lightweight scientific calculations?



NEW LOOK! Mac OS X: Clock

The Clock application is cool, but I miss having the time in the menu bar. In any event, you can display the Clock in either analogue or digital modes (for those of us who have a hard time remembering what the big hand and the little one mean). And it can float on your screen or just sit in the Dock and tell you the time from there.

Mac OS X: the beta survival guide

By Franklin Tessler, David Pogue, and Henry Bortman.

Explore the future safely with these tips for installing and using the new Mac OS

Install with care

Think very different. From the Roman numeral in its name to its Aqua interface, that's what Mac OS X is.

The right stuff Before you reach for your credit card, make sure your hardware is up to the job. Here's what you'll need to run OS X:

- An iMac, or any Power Mac, PowerBook or iBook with a PowerPC G3 or G4 processor, except for the original PowerBook G3 (the limited-release model before Wallstreet). Apple hasn't committed to supporting other PowerPC-based Macs, including those with third-party G3 or G4 processor cards. By the way, you can't install the OS X beta on a FireWire drive, but you can store OS X files on it.

- Internal video or an Apple-supplied video card from ixMicro or ATI. If you have more than one monitor connected to your Mac,

then make sure you disconnect the second monitor before installing.

- At least 64MB of memory to run OS X. And you'll need even more memory — Apple recommends 128MB, if you also want to run OS 9 applications under OS X.

- 1.5GB of free disk space. If you can spare the room, it's a good

idea to set aside another gigabyte or two for applications and documents.

- Firmware updates for your Mac and other hardware. Look for the latest International-English installers on Apple's support site (<http://asu.info.apple.com>). Updates may cause their own problems, so give yourself time to recover before you go to the next step in the installation process.

Preflight checklist Apple is taking a huge gamble by releasing Mac OS X before it's done. If the beta's a bug-ridden turkey, Apple could lose the confidence it has recaptured since Steve Jobs's return to the helm. So it's a safe bet that Apple's software engineers have been working overtime to make the OS X beta as stable and reliable as possible. Still, you should take these simple steps to

forestall many problems that are likely to occur:

- Don't install the OS X beta on any Mac that you can't afford to live without. Even if you have backups of your applications and data, it can take hours to reformat and restore a hard drive.

- Back-up your disk before you install, and then do it again frequently after that. Don't assume your existing backups are intact — test them to make sure the files weren't corrupted during backup. If you use Dantz's Retrospect (www.dantz.com), you can use the Verify function to check the integrity of your backups.

- Although you can install the OS X beta on the same volume as Mac OS 9, instead, shield your files by installing it on its own hard drive. (OS X beta can't boot from an external FireWire drive, however.) That way, you'll be less likely to lose valuable data if your computer goes south. If you don't have an extra drive and must run the beta, use Apple's Drive Setup to create a separate partition for OS X on your disk. Note that you can't partition an active drive — you must reinitialize it.

- Keep your existing OS 9 system folder, preferably on a separate partition or volume, so you can still use your present apps in Classic mode and, when you want, use the System Disk control panel to switch back to Mac OS 9.

Ready for take-off You've backed up and prepared your hard drive, you've loaded the latest firmware updates, and you're holding the OS X beta CD-ROM in your hand. It's time to install. Either stick the CD in your drive as it turns on and hold down the "C" key, or do the following:

1. Insert the OS X CD in your Mac and double-click on the Install Mac OS X beta icon.
2. Click on Continue. Your Mac will restart from the CD, and the installer will run automatically. (The spinning, coloured CD cursor shows you that OS X is loading.)
3. Choose a destination volume or partition for OS X. You have the option of reformatting the OS X disk in Mac OS Extended (HFS+) or Unix File System (UFS) format. The beta works with either one, but only Mac OS Extended drives show up on a Mac OS 9 desktop, so that's the best option for most users.
4. When the installation finishes, the installer will restart your Mac.

Shipshape flight gear The first thing you'll notice when Mac OS X boots is the revamped Setup Assistant. Although it resembles its OS 9 counterpart, the OS X version lets you configure more settings. It offers mostly straightforward options but adds a few new wrinkles:

- **Configure Your Network:** a series of screens in the Setup Assistant lets you configure your Mac's ethernet port to handle TCP/IP, enter a static IP address, or specify whether your computer will use a DHCP (Dynamic Host Configuration Protocol) or BootP (the default) server for Internet access. (It might be a good idea to open your Mac OS 9 TCP/IP control panel before rebooting into Mac OS X and writing down all the settings therein, so you've got them handy when you get to this screen.)

- **User Accounts:** Unlike OS 9's optional Multiple Users, Mac OS X requires that you specify at least one password-protected user account.

Mac OS X: Where'd everybody go?

Mac OS X is like coming home from college and finding out that your parents have converted your bedroom to an office. Here are some hints about where to find the features you once knew. Apple has moved or replaced some; the company may yet restore those labelled "Missing." Features that are gone forever are labelled "Eliminated."

MAC OS 9 FEATURE

WHERE IT IS IN THE MAC OS X BETA

About This Computer

Missing. To find out your system software version, choose About This Mac from the Desktop menu. For memory stats on running programs, go to the Applications: Utilities folder and open ProcessViewer.

Appearance control panel

Missing — but you can apply a picture to your desktop by choosing Desktop & Dock Preferences from the Desktop menu, then clicking on the Desktop tab. To change colours, click on System Preferences in the Dock and go to the General tab.

Apple DVD Player Apple menu

Missing.

Missing, but the Dock has some items once in the Apple menu, and dragging items into the Dock is a lot like adding items to the Apple menu.

AppleCD Audio Player Balloon help Chooser, Desktop printers ⌘-Shift-3 (screenshots)

Music Player.

Eliminated.

Now called Print Center, it's in the Applications: Utilities folder.

Open the Grab application in the Applications: Utilities folder, go to the File menu, and choose to make your screenshot a Selection (Command-Shift-A), a Window (Command-Shift-W), a Screen (⌘-Z), or a Timed Screen (⌘-Shift-Z).

⌘-drag to scroll window Control panels Desktop clippings Disk First Aid Disk icons

Option-drag.

Click on System Preferences in the Dock. Some control panels are absent from the beta.

Missing. You can still create clippings in the Classic environment, but OS X programs can't accept them.

Now called Disk Utility in the Applications: Utilities folder.

Removables like CDs and Zip disks can show up on the desktop. If you want an alias of your hard drive on the desktop, you must put it there yourself: choose Computer from the Go menu or click on the Computer icon in the Finder, then ⌘-Option-drag your hard drive icon to the desktop.

You can drag from the top edge, but not the sides.

Incorporated into the Mac OS X Installer.

Draggable window edges Drive Setup Encrypt command Extensions File Sharing Fonts folder

Missing.

Inaccessible.

In the Sharing pane, which you reach by clicking on System Preferences in the Dock.

In the System: Library: Fonts folder, but you can no longer double-click on a font to see what it looks like.

Show Inspector under the File menu.

Missing.

In the Applications folder.

Keychain Access control panel Multiple Users control panel Pop-up windows Preferences folder Restart command

In the Applications: Utilities folder.

In the Applications: Utilities folder.

Eliminated.

Non-existent as we know it, but click on System Preferences in the Dock for some features.

Present as a button in the log-in panel. Choose Quit from the File menu to log out, and the panel will appear.

No longer in the File menu of your programs; now in the Application menu.

Quit command Scrapbook, Note Pad Script Editor Sherlock Shutdown Items Simple Finder SimpleSound SimpleText Startup Items Stickies TCP/IP, AppleTalk Web Sharing control panel

Missing.

In the Applications: Utilities folder.

On the Dock.

Missing.

Eliminated.

Missing.

Now called TextEdit, it's in the Applications folder.

Click on System Preferences on the Dock; click on Login; click on Add under the Login Items tab.

In the Applications folder.

Click on System Preferences on Dock; click on Network. Note that the AppleTalk default is inactive.

Click on System Preferences on Dock; click on Sharing; turn on FTP access for each item you want to share; then enable it using Show Inspector.

Zoom box

The green dot in the upper-left corner of a window.

Mac OS X: on the Web

VersionTracker.com

www.versiontracker.com

This site has the latest Mac software available for download, for OS X and beyond.

X Appeal.org

www.xappeal.org

This page features information on hardware compatibility with OS X, a user forum, and how-tos for the new and strange operating system.

The X Files

www.macspeedzone.com/4.0/Xnews.html

Go here for links to OS X sites around the world. It also contains links to OS X-compatible games and applications.

MacFixIt

www.macfixit.com

MacFixIt is a familiar site to those of you who like to get in there and fix things yourself. Some areas of the forum section deal with OS X, and you can expect problems with the OS to be posted on this site as they arise.

Stepwise

www.stepwise.com

Stepwise is a good overall Mac OS X site. It details the latest OS X developments and links to other informative sites.

A Dozen Basic Unix Commands

BLUEHILL.com/support/commands.htm

OS X is the first Mac operating system to have a Unix command-line terminal that can control everything from printing to copying files to restarting your system. This site helps by giving you basic UNIX commands.

— Jason Cox

Once the Setup Assistant applies your settings and you restart, you're ready to begin exploring the OS X beta.

Explore with care

Where is everything? The most disorienting aspect of the beta is its folder structure. What lies behind Mac OS X's pretty face is Unix, plain and simple. Your Mac's default name is localhost, and the System folder contains folders called Administration, Applications, Documentation, and Library. Poke around, and you'll find files with names like BSD.pkg and apache.conf.bak.

For now, don't knock yourself out trying to decipher the functions of these files and folders. Instead, get to know the new Go menu or the Finder toolbar, both of which give you direct access to the folders you really care about: Applications, where you'll find most of your Mac OS X programs; and Documents, where Mac OS X programs deposit your work (unless you direct them to a different folder via the Save command). Both of these folders are buried deep in the nested mass of Unix folders, but you can summon them easily with the Go menu.

Window confusion Finder windows don't work quite like they used to. For example, double-clicking on a folder or disk doesn't open a new window. Instead, you see one big window at all times; each disk or folder you double-click appears within this window, replacing its contents. Click on the Back button just below the title bar (or press \mathbb{A} -B) to return to the previous view. In other words, the Mac OS X Finder works like a Web browser for your hard drive. Unlike a browser, though, there is no Forward button.

If you need to open two windows at once (for example, to move or copy icons), use the File menu's New Finder Window to create a second window or Option-double-click on a disk or folder to open it in an independent window. You can also use the Column view. To alter the default behaviour so that every double-click on a folder opens a new window, choose Dock and Desktop Preferences from the Desktop menu, click on the Finder tab, and choose the "in a new window" radio button.

Back to Mac OS 9 You get the best Mac OS X experience by using programs written for Mac OS X (termed "Cocoa") or adapted to it (called "Carbonized"). Only these programs offer features like the Aqua interface and memory protection, which ensures that if one application crashes or freezes, the rest of the Mac zooms merrily along. You don't have to buy entirely new programs, however. Apple's Classic application lets you run OS 9-compatible programs in their own memory bubble. They don't offer the same stability and features; if one of these programs crashes, your entire Mac OS 9 bubble may crash. But even then, you don't have to restart the machine; Mac OS X soldiers on.

To enter the Mac OS 9 world, just double-click on the icon of one of your older programs. (Most such icons look blotchy and ragged, since they weren't designed with Mac OS X's smooth-scaling graphics technology. However, some forward-thinking developers can create Classic applications that also have pretty OS X-style icons — you'll know them when you see them). Unfortunately, launching the Classic application is just like starting up a Mac OS 9 machine, complete with a long wait for extensions to load. And unless your Mac has 128MB of RAM or more, you'll find launching older programs painfully slow. No matter how much RAM you have, mundane tasks like scrolling in graphic-heavy documents may be slow and jerky.

What to look forward to If you're willing to learn Mac OS X's new terminology, new locations for familiar controls, and new technology concepts, and if you're willing to bear with the bugs and glitches that enliven any beta-test

experience, you may start seeing its potential. For example, you now have a keystroke (\mathbb{A} -H) for hiding the active program and another (\mathbb{A} -M) for collapsing a window to the Dock. The Network program lets you turn any Mac into not only a Web site, but also an FTP, Telnet, or email server — for free. And the Terminal program brings command-line power to the Mac.

Viewing the beta version of Mac OS X is like gazing at a hunk of hacked marble. Its solidity and heft make it inspiring, and the right artist can unleash a lot of beauty — but at the moment, it's got a lot of ragged surfaces and sharp corners.

Classic confusion

If you're planning to install Mac OS X beta for day-to-day use, expect a dose of disorientation. The whole reason you're installing the beta is that you can't wait to live in the Aquafied world of Mac OS X, right? It ain't gonna happen. In fact, you'll probably spend most of your time in the Classic environment, which behaves pretty much like Mac OS 9. At best you'll get bounced back and forth a lot between Mac OS X proper and Classic. Few popular applications will be Carbonized — rewritten to take advantage of X — until well into the beta period. See www.versiontracker.com for a constantly updated list of Carbonized applications.

Basic look and feel When you're running a Mac OS X application, the menu bar looks Mac OS X-ish. No Apple menu on the left, no applications menu on the right, and so on. But when you're running Classic applications, the menu bar has the old familiar OS 9 look. It makes it hard to get used to anything.

Classic, the application When you start up the Classic environment, you're actually running a Mac OS X application called Classic. If you click on the "9" in the Dock, you'll find yourself inside this application, wondering where the heck you are. Although it's called Classic, it has an OS X look and feel. Why is it there? It lets you Restart or Shut Down the Classic environment. There's a similar application — called Classic Support — within the Classic environment so it has an OS 9 look and feel.

Networking No matter how you have your network settings configured in Mac OS 9, when Classic starts up, Mac OS X will override them with its own settings. Location Manager in OS 9 gets confused by this OS X override and displays cryptic messages when you shut down. So you might as well turn it off. Wireless AirPort isn't supported in the Mac OS X beta, so you might as well turn that off, too.

Fonts Mac OS X and the Classic environment don't share a common set of fonts. Your Classic apps will have access to all the fonts you had installed in Mac OS 9. But your Mac OS X apps won't, unless you also install them in the OS X Fonts folder (within the System: Library folder).

Extensions and Control Panels They're not accessible in Mac OS X, and they don't all work when you run a Classic application. In Classic, you'll probably want to turn off some extensions until they're taught how to behave properly under OS X.

Peripherals Printers, scanners, mice, and other peripheral devices communicate with your computer through bits of software known as drivers. Well, guess what? Mac OS 9 drivers don't work under Mac OS X. So peripherals need all-new drivers for X. Many of these won't be ready right away. Apple will provide some generic basic-functionality drivers for laser printers, for example, and for plain-vanilla mice and keyboards. But you'll probably have to wait awhile before you can use all the features of all your peripherals with OS X. And printing to a USB printer from Classic simply doesn't work in the beta.

Don't be disheartened. Just be aware that the Mac OS 9 to OS X transition is going to be a bit rocky. As long as you're prepared for a bit of bizarre behaviour, you'll do fine.

OS X beta: Lab report

By Kristina DeNike

Macworld Lab tests show apps run slower under Classic; native apps faster in OS X



Behind our tests

We used Mac OS 9.0.4, a default system disk-cache, and Virtual Memory disabled for all OS 9 applications tests. Displays were set to 1,024-x-768 at 24-bit colour. We tested Photoshop with 1GB of RAM and a 200MB test file. We tried to set Photoshop's memory partition to 900MB and History to minimum in OS X, with unclear results. Cinema 4D XL, SoundJam, and Quake 3 testing used 256MB of RAM. 80MB of memory was allocated to Cinema 4D XL. We rendered a model at 680-x-480 with oversampling set to 4-x-4. A 9:25 track from an audio CD was used for our MP3 encoding test. It was converted using default settings of 128Kbps in SoundJam 2.1.1. Quake 3 frame rates were recorded at 640-x-480 "Normal" mode.

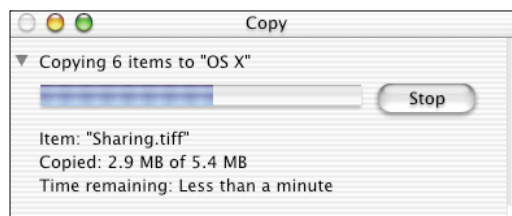
For the curious, OS X is like a birthday toy, promising hours of puzzle solving and fun. This beta is not fully optimized for performance, nor is it compatible with the full range of Macintosh peripherals; however, it does give us an indication of some of OS X's potential. My goal was to find out how the public beta performed in terms of speed. Since there are very few Carbon or Cocoa applications currently available, I did most of my testing with Mac OS 9 applications running in Classic.

Classic itself runs in its own window, and behaves much like PC emulation packages, such as Virtual PC or SoftWindows. However, PC emulators must translate Intel instructions to PowerPC instructions, a slow and laborious process. Since OS 9 applications start out as PowerPC instructions, the applications should be almost as fast in Classic as they are in regular old OS 9. This was true for some tasks, such as encrypting a file in OS 9, and unstuffing a file with the Classic version of Stuffit Expander.

On a multiprocessing system, Classic gets to run on its own processor; however, Classic is not multithreaded. Currently, Mac OS 9 applications that are written to take advantage of the second processor are limited to one processor in Classic. But, Classic is separate from Mac OS X, so background applications in Mac OS X shouldn't slow down Classic applications. Unfortunately, I wasn't able to test this. My test machine, a Power Mac G4/500 dual-processor, crashed repeatedly with iMovie and other Classic applications. Also, performance appeared to be slower than on a single-processor Power Macintosh G4/500.

Macworld Lab's standard testing suite, Speedmark 2.1, includes 2D scrolling tests. I found 2D scrolling performance was two to three times slower in Classic than in Mac OS 9. I checked scrolling in Adobe Acrobat, Microsoft Word, and Excel. Drawing windows in OS X was also noticeably slow. The problem may be that Mac OS X's drivers for ATI graphics cards are incomplete. I also found that if the Dock is open, scrolling performance gets even worse – set the Dock to auto-hide to get the best results.

After the slow 2D numbers, I was pleasantly surprised with the frame rates from the Quake III demo. 3D



NEW LOOK! Mac OS X: Progress bars

Apple's new Aqua interface means pulsing, liquid-like progress bars that make those long waits slightly more interesting. New hardware – faster G4 chips and Gigabit Ethernet – make a more profound difference to progress bars, however...

operations are clearly being accelerated in Classic, although the frame rates are still not as fast as native OS 9.

Adobe Photoshop is an industry standard for performance testing. I wanted to install 1GB of RAM and set Photoshop's memory size to 900MB. However, I had problems setting Photoshop's application size under OS X. I used the new version of Get Info, the Inspector, to change the application size. When I launched Photoshop in Classic, the setting appeared to be correct – but based on the performance numbers, the memory setting was still at its default. If I rebooted into OS 9, changed the application size via Get Info, and then re-booted into OS X, Photoshop would quit before it even got to the splash screen.

Classic apps can't communicate directly with Mac hardware – they must go through OS X. This beta has support for most Apple hardware, and some USB and FireWire peripherals. However, OS 9 apps that are looking for specific hardware may not run. A VST FireWire drive and a USB Zip 250 worked fine. Even ones that didn't mount were recognized on the bus – for instance, a USB Canon scanner, a QPS FireWire CD-RW, and a USB Epson printer.

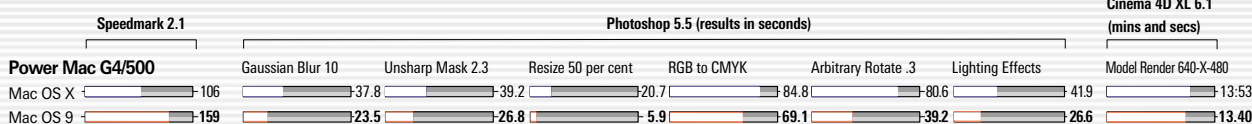
There were a couple of bright points. Under OS X, PowerBooks do wake up from sleep in just a few seconds. Also, I saw good performance with the Carbonized OS X preview version of Casady & Greene's SoundJam MP.

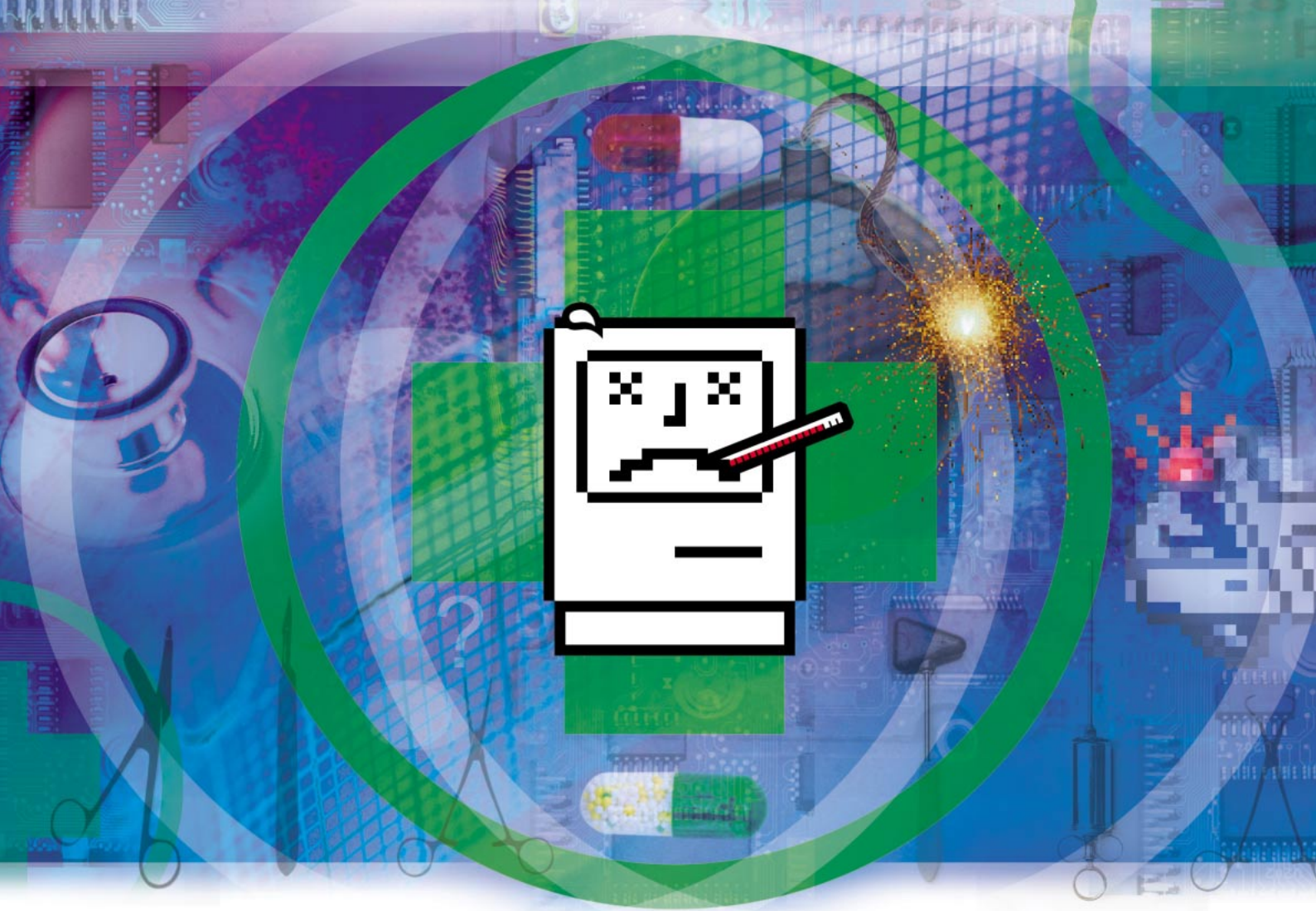
Macworld Lab will continue to test Mac OS X and report on the details. Right now, Classic apps run slower under OS X emulation than they do natively in OS 9. When developers release Carbonized versions of their apps (see News, page 22), we should see OS X in its true colours. **MW**

Mac OS X vs Mac OS 9: Classic slower, Carbon awaits

Mac OS X vs Mac OS 9

Best results in test. Speedmark 2.1 scores are relative to an iMac 350MHz which is assigned a score of 100.





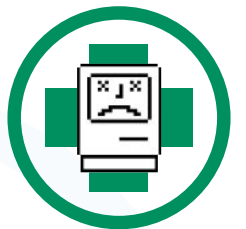
Mac doctor

From hiccups to heart attacks, we've got the cure for what ails your Mac. By Ted Landau

In a perfect world, you'd be reading something else right now. Of course, in a perfect world, you'd not be seeing a Type 2 error message on your monitor as you try to start up your Mac – and frantically worrying whether you and your files will ever meet again. You'd go to the Web to look for the solution, but your computer's on the critical list, so you can't very well use it to get online. And calling tech support means hours of hold time and countless transfers – and maybe a big bill if your computer is no longer under warranty. You need help, and you need it fast.

That's where this guide comes in. Whether you're facing a computer crash, or any of an assortment of other ills, I'm here to tell you the probable cure – as well as those suggestions that may just waste your time.

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Treating the symptoms

How do you deal with the computer symptom that causes more nightmares than any other – a Mac that fails to start up? In the worst-case scenario, you could lose all the data on your hard drive – a major disaster, especially if you don't have a recent back-up. Fortunately, the worst-case scenario is rare. More likely, your files are intact and you just need to figure out how to get to them. Here's your road map.

▲**What's with the question mark?** Your Mac shows a persistently flashing question-mark icon at start-up.

➤**Solution:** Try to start up from the Mac's Install or Restore CD. If this succeeds, check your System Folder and make sure it still has the Mac OS icon on it. If it doesn't, a critical file may be missing from the folder. For starters, just open and close the folder. If the icon doesn't return, make sure you have both a System and a Finder file in the folder. If you've removed either from the System Folder, find it and drag it back, or install a new copy – using the installers on the aforementioned CDs.

If everything seems in order with your System Folder, check for disk damage. If all of this fails, reformat the drive – typically using Apple's Drive Setup utility. Aren't you glad you backed up your drive last night – you did, didn't you?

▲**"Almost" doesn't count** Your Mac shows at least some signs of intelligent life. The Happy Mac icon and the "Welcome to Mac OS" screen both appear. You look like you're making progress – but then you get a crash.

➤**Solution:** Make a first pass at checking for an extension conflict by starting up with Extensions off – hold down the shift key during start-up. If this bypasses the crash or freeze, restart again with Extensions on. If this works, the computer gods have smiled on you – be grateful and hope the crash doesn't return. Otherwise, you'll need to isolate the problem extension.

Apple recently identified an obscure Mac OS file called SerialShimLib that, if present in the Extensions folder, might cause FireWire PowerBooks to crash on start-up. Updating to Mac OS 9.0.4 or later – which has a revised

version of this file – fixes the problem. If the symptom persists, even when you start up with Extensions off, the cause could be a peripheral device connected to your Mac. These days, USB devices are the most common culprits – the workaround is to not connect the device until start-up finishes. Ultimately, look to Apple or the device vendor to offer a better fix.

In general, you can avoid many problems by updating to the latest Mac OS software. For Mac OS 9 users, keeping up-to-date with Apple software couldn't be easier – just click on Update Now, in the Software Update control panel, and let it do its thing. If Software Update fails – as it sometimes does – you can still download most updates from the Web (for Apple software, check out <http://asu.info.apple.com/swupdates.nsf/>).

⚠**Caution:** software updates can introduce new problems as well as fix old ones. Web sites such as my own MacFixIt (www.macfixit.com) can alert you to any dangers that may lurk in a new update. Also, make sure you use the International-English version.

▲**The comatose Mac** Start-up goes fine. The real problem occurs after you put the Mac to sleep. A crash or freeze occurs when it wakes up, leaving your Mac in a state of limbo.

➤**Solution:** USB devices cause many of these wake-from-sleep crashes. Once again, the workaround is to disconnect the device before the Mac goes to sleep.

Some intermittent wake-from-sleep crashes stem from specific applications – Microsoft Internet Explorer 5 is one example. The solution here follows similar logic – make sure you've closed the problem program before letting your Mac go to sleep. If you do get one of these freezes, use a force-quit (⌘-option-escape) to exit the offending software and return your Mac to life – although it's still best to restart as soon after as possible.

Disabling Apple's InputSprocket Extension may also prevent some of these crashes. Since you need this extension for playing only certain games, you can leave this

extension permanently disabled if you're not a game player.

Finally, some wake-from-sleep crashes happen only if you have the Preserve Memory Contents On Sleep option enabled in the Energy Saver control panel of iBooks and FireWire PowerBooks. In this case, restart your Mac and press and hold down the escape key until the Happy Mac icon appears. If even this fails, you may be looking at a rare instance where only reformatting the drive can get you back in business. Happily, updating to Mac OS 9.0.4 will prevent this crash from occurring in the first place. Otherwise, make sure you never enable this option – to help out, Apple released a Sleep Memory extension that greys out the option so you can't select it.

New hardware, new errors

Apple's most recent Macs feature a host of options not found on older models. These include DVD drives and USB FireWire ports. Using these options can lead to never-before-seen error messages. Checking Apple's Tech Info Library (<http://ti.info.apple.com>) is a good way to keep up with the latest trends in Apple error messages, or troubleshooting tips in general. For now, here's a starter kit.

▲**USB's powerful needs** You get a "Not enough power" message when trying to use a specific USB device.

➤**Solution:** Unlike some error messages that say one thing, but mean another, you can usually believe this one. While the Mac's USB ports can give juice to USB devices that do not supply their own power, there is a limit to how much these ports can do. Surpass that limit, and you get the "Not enough power" error message. The solution is to add a self-powered USB hub, or you can remove non-essential devices, swapping them in and out with the remaining devices as needed.

▲**AWOL USB drivers** At the end of start-up, an error message indicates that the Mac couldn't find the driver for a connected USB device.

➤**Solution:** USB devices require software drivers to work – usually installed in the Extensions folder of the System

Folder. If you connect a device without installing its driver, you may get an error message. The solution is to install the missing driver – it should be on a CD-ROM packaged with the device, or on the company's Web site. In Mac OS 9, your computer will offer to search online for the needed driver and download and install it. Very convenient – when it works.

Luckily, Apple has improved your odds of avoiding this error. Mac OS 9 includes a generic set of built-in USB drivers. For this reason, many USB devices will work without the addition of any further software – although you may sacrifice access to some specialized features of the device, such as scrolling on a third-party mouse.

Surprisingly, in a few cases, getting rid of the device-specific driver is the key to success. For example, the Gravis GamePad comes with a driver called InputSprocket Gravis USB. But don't use this file if you want to use the GamePad with Star Wars Episode I Racer. The game will only recognize the GamePad if you don't have the extension installed.

Alessandro Levi Montalcini's \$20 shareware program, USB Overdrive (www.usboverdrive.com), offers another set of generic drivers. This software can often get a USB device to work, even when the device's own driver fails. It has proven particularly effective in solving problems with non-Apple mice.

If none of this works, try some of the more generic solutions for an assortment of odd USB problems – unplug the device from its USB port and plug it immediately back in. Or, unplug the device from its USB port and plug it back into another port – for example, switch from port 1 to port 2.

▲**DVD hardware errors** A message about a hardware error appears when the Apple DVD Player launches.

➤**Solution:** Updating to a newer version of DVD Player should eradicate this error. For example, if you are running Mac OS 9.0.4, you should use Apple DVD Player 2.2 or later. Just remember that the Apple DVD Player application requires four extensions – DVDRuntimeLib, DVD Region Manager, DVD Navigation Manager, and DVD

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Stopped before you start: What to

do when you can't even get your Mac to start up

You know you're in trouble. Almost as soon as you turn on your Mac, it makes a noise you've never heard before – it may sound like glass breaking in a car crash, or like a series of beeps. If you have an older Mac, the dreaded Sad Mac icon may appear, or you may just get a blank, grey screen. After that, your Mac acts as though it's dead in the water. What do you do?

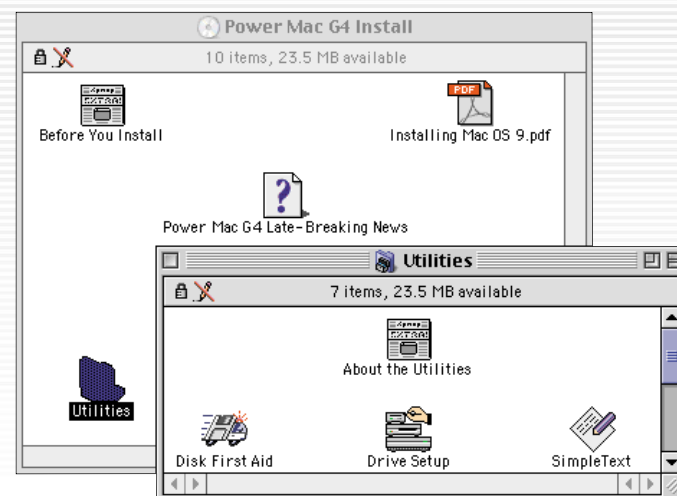
You can try a few tricks at home before calling tech support or, even worse, lugging your computer to a service shop.

➊ **Restart** You can't select the Restart command in the Finder – after all, you can't even get to the Finder – but you have other options. What to do varies with different Mac models. In most cases, you're guaranteed success if you press the reset button – the triangle-symbol button on your Mac.



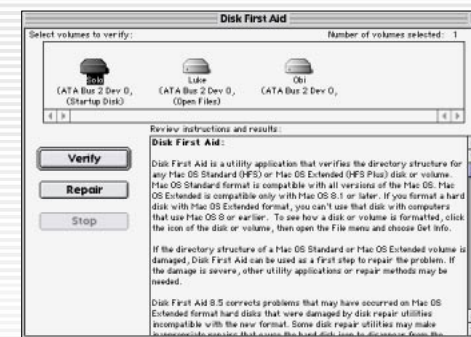
Find and press the reset button on your G4, iBook, iMac, or PowerBook if you can't select the Restart command.

➋ **Start up from a bootable CD** If the reset button doesn't help, try starting up from a bootable CD, such as the Install or Restore CDs that come with every Mac.



CD boot-up

Insert the disc immediately after pressing the reset button – you may need to hold down the C key or option key to get the Mac to start from the CD.

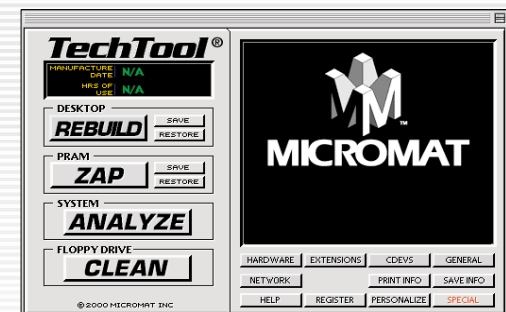


Disc choice

Choose the disc you want to check. Then click on Verify to check the integrity of your disc. Finally, click on Repair to fix the problem. If this doesn't sort the problem, try another disc, such as Norton Utilities.

➌ **Check for disk damage** Once you've started up from the Install CD, check your hard drive for damage with Disk First Aid and make any recommended repairs. Restart.

➍ **Zap the PRAM** If trouble persists, repeat the procedure, this time zapping the PRAM (see above, right).

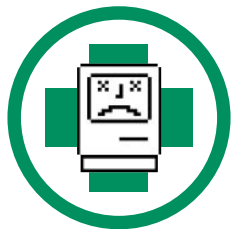


Memory zap

You can zap the PRAM by pressing ⌘-option-P-R at start-up, but TechTool can provide a more complete zap – and you can save your settings to restore afterwards.

➎ **Check for hardware problems** If your Mac still needs resuscitation, you probably have a hardware problem. The most common one is a defective memory module. If you aren't comfortable opening it up and swapping parts, now may be the time to take your Mac to an Apple Authorized Service Provider.

➏ **Run the Apple Hardware Test Diagnostic CD** If you have the Apple Hardware Test Diagnostic CD that recently started shipping with FireWire PowerBooks, give it a try. It can check for hardware problems, even if your Mac can't start up.



Tools to use

To solve 95 per cent of the problems you're likely to face, you need just five per cent of the utilities out there. Besides the utilities covered in the main text, here are a few others that make my list – all are Mac OS software, shareware, or freeware.



Seeing invisible files Sometimes a troubleshooting technique requires that you locate and delete an invisible file. Many utilities, including Apple's Sherlock, can do this. The main difference is in the level of convenience they offer. My personal choice is SkyTag Software's \$40 File Buddy (www.skytag.com). It allows you to search quickly for just the file you want and then make it visible, delete it, or do whatever else you need to.

Changing type and creator codes Every file on your desktop has a file type and creator code. These help the OS determine whether a file is an application, a document, an extension, or another element, and – especially important for documents – what application created the file. To solve certain troubleshooting problems, you'll want to make changes to these codes. For my money, the easiest way to do this is with Nifty Neato Software's \$20 Snitch (www.niftyneato.com). It appears in the Finder's Get Info windows. I especially like to use it to change the code of a read-only SimpleText document to one I can copy and paste. Otherwise, Apple's free ResEdit (<http://asus.info.apple.com/swupdates.nsf/artnum/n10964>) can handle this – and can do many more things, including check for damaged files.

Checking hardware specs Do you need to know what processor is in your Mac or the BootROM version of your Mac's firmware? If so, the Apple System Profiler – part of Mac OS 9 – is likely all you'll need. If you find that it fails to provide the answer that you seek, try Decision Maker's \$15 TattleTech (www.users.uswest.net/~mjohn5/index.htm) or Newer Technology's free Gauge Pro (www.newer-tech.com).

Checking open processes Solving memory-related problems often requires knowing exactly what programs you have open, how much memory they are using, where in the memory space they are located, and then quitting certain open programs. This can get tricky because often "faceless" programs – or processes – run without appearing in the Application menu. Here is where a utility such as Clarkwood Software's \$20 Peek-a-Boo (www.clarkwoodsoftware.com/peekaboo) can help. It lists all open processes and allows you to quit any one you want.

AutoLauncher. If you copy the application without the extensions, you'll get an error message when you try to open DVD Player. It's best to let DVD Player Installer do the updating.

Also, make sure you've installed the Apple CD/DVD Driver, Foreign File Access, ISO 9660 File Access, and UDF Volume Access extensions. These belong to Mac OS, and should already be on your Mac unless you disabled them – for example, by installing a third-party CD driver.

The first Macs to include DVD drives – some blue-&-white Power Mac G3 models – came equipped with a hardware-based DVD decoder. These Macs should use Apple DVD Player 1.3. DVD Player 2.x is for Macs using software-assisted decoding – these include slot-loading iMacs, G4 Power Macs, FireWire PowerBooks, and the new iBook.

▲DVD out-of-sync errors When your Mac is playing DVD movies, the audio and video can fall out of sync, with the audio lagging behind what you're seeing on the screen.

➤Solution: Once again, fixing this requires that you use the latest software. In particular, update to Mac OS 9.0.4 or later, DVD Player 2.2 or later, and QuickTime 4.1.1 or later. If problems persist, turn off virtual memory before playing a movie.

▲DVD "dirty" movies When trying to mount a DVD disc, you get the error message: "Disc may be dirty or scratched."

➤Solution: While the disc may indeed be dirty or scratched, it's more likely that you need to get your Mac to mount it as an ISO 9660-formatted disc – rather than DVD's UDF format. To do this, hold down ⌘-option-I when inserting the disc. If the disc mounts, but still doesn't play, control-click on the disc icon and select Mount As ISO 9660 from the contextual menu. Most DVDs will not need this fix. In any case, upgrading to Mac OS 9 should eliminate the problem altogether.

Cures for the common cold

Some common troubleshooting techniques are equivalent to taking aspirin – no matter what is wrong with your Mac, someone will tell you to "take one of these" and hope for the best. But rather than just talk about how to do them, let's consider whether these cure-alls really live up to their billing.

▲Check for extension conflicts Does RealPlayer 7 crash every time you quit? You might need to update your copy of

More Info: www.macfixit.com

Keep up to date with the latest troubleshooting tips and utility upgrades every day.

Kaleidoscope to version 2.3.3 or later. Does Norton AntiVirus send you alert messages for no particular reason? If so, updating to FinderPop 1.8.9 may be the answer.

Welcome to the world of extension conflicts. Those icons that scroll across the bottom of your screen at start-up represent your extensions. Too often, an extension will tell your Mac to do something that doesn't sit well with other software on your disk, resulting in a system crash, a non-functioning menu command, or something equally unpleasant. There are at least as many potential symptoms as extensions – and there are thousands of extensions. Given this diversity, how can you know if a problem is due to an extension, and, if it is, how do you figure out which one?

For starters, you can easily check for a potential extension conflict by starting up with Extensions off – just hold down the shift key at start-up. If the problem goes away, you have a conflict. Your job now is to figure out which extension is giving you grief. Apple's Extension Manager doesn't really cut it here. You'll want Casady & Greene's £81 Conflict Catcher (Softline, 01372 726 333). Once this program has isolated the problem extension, you'll usually need to disable it. However, if two extensions conflict with each other, reversing the order in which they load at start-up may fix the problem. In any case, report the conflict to the vendor and hope for a bug-fix update – as the authors of Kaleidoscope and FinderPop have provided.

➤Bottom line This one is a keeper. Don't leave home without it.

▲Check for disk damage One day, a file appears to have vanished from your drive. Or maybe it's there, but refuses to open, citing some odd error. Eventually, you start getting frequent system-crashes, culminating in your hard drive refusing to start up at all. Often the ultimate cause is corrupted data in a disk's directory, an invisible area of every disk containing critical information about the organization of software on your drive.

Recognizing the potential dangers here, Apple includes Disk First Aid, a Directory repair utility, as part of the system software. If Disk First Aid discovers a problem it can't fix, don't despair. Other utilities, such as Symantec's £99 Norton Utilities (Computers Unlimited, 020 8358 5857), Micromat's £95 TechTool Pro (Softline, 01372 726 333), and Alsoft's £55 DiskWarrior (Softline), may help.

➤Bottom line This is another keeper. In fact, you should regularly run at least one of these utilities as a preventive measure, even if no sign of trouble appears on the horizon. The only dilemma is choosing a utility to use. Disk First Aid comes free with your Mac, so start with that. For those times when it fails to work, you should have at least one alternative ready to go. Get all three if you don't mind spending the cash – there's always a chance you'll get a problem that only one of these utilities can fix.

▲Rebuild the desktop If you've ever had files lose their custom Finder icons, or if you've encountered documents that can't locate the application needed to open them, it's time to rebuild the desktop. To do so, hold down the ⌘-option keys at start-up – until the message asking whether you want to rebuild the desktop appears – or use a utility such as Conflict Catcher or Micromat's free TechTool.

➤Bottom line You'll probably need to rebuild the desktop from time to time – especially after installing new software. But doing so is far from a cure-all. Many users survive without ever doing this at all – I've had to rebuild only once in the last year, even though I regularly work with three different Macs.

▲Zap the PRAM A PRAM zap can potentially fix otherwise unexplained start-up or shutdown crashes. The PRAM is a semi-permanent area of memory that holds information

about the date and time, as well as customized settings for various control panels. If the PRAM data gets corrupted – which can happen after a system crash, or for more-obscure reasons – start-up failures may result. A PRAM zap can fix this by restoring the PRAM to its default values, thereby trashing the corrupted data. To do a zap, hold down the ⌘-option-P-R keys at start-up (see the Apple TIL article at <http://til.info.apple.com/techinfo.nsf/artnum/n2238> for more details), or use TechTool. After a zap, you'll probably need to redo the settings in several Mac OS control panels – such as AppleTalk, Memory, and Startup Disk.

➤Bottom line A PRAM zap is worth a try when nothing else seems to be working, and reformatting your disk looks like the probable next step. Don't expect miracles, though.

▲Defragment a disk Does your Mac seem atypically slow when opening applications? Are you having trouble getting digital video to play smoothly on your Mac? If so, defragmenting your drive may be the cure. Defragmenting – or optimizing – reorganizes the way files are stored on your disk, ideally leading to increased performance by preventing time-wasting jumps to different locations on the drive. To do so, use utilities such as the SpeedDisk component of Norton Utilities or Alsoft's PlusOptimizer, which comes bundled with DiskWarrior.

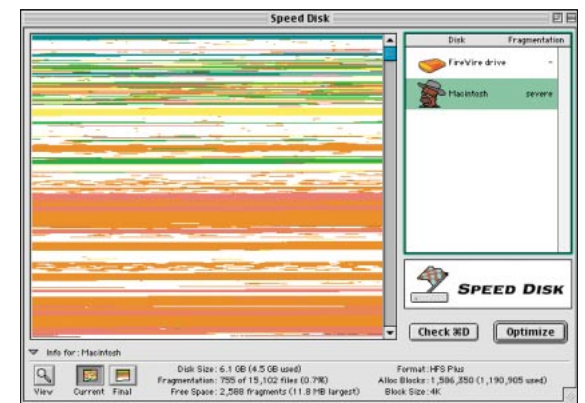
➤Bottom line If you regularly use your drive for multimedia tasks, such as recording video streams, or if you're constantly on the edge of completely filling your hard drive, defragmenting can help. Apple has even identified a rare case where a heavily fragmented disk can cause a start-up failure (see <http://til.info.apple.com/techinfo.nsf/artnum/n25145>). However, for most users, defragmenting is a waste of time. Read a good book instead.

▲Check for viruses I use my Mac upward of 10 hours a day. I have a cable connection that keeps me online 24 hours a day. Yet I have not had a virus even attempt to attack my Mac in more than seven years. I expect most Macintosh users can make similar claims. The Mac is also immune to most of the viruses that have been making headlines – such as Melissa and Love Bug. Still, some viruses out there can attack your Mac – such as Autostart, SevenDust, and a variety of Word and Excel macro viruses. To protect yourself, get an antivirus utility, such as Symantec's £69 Norton AntiVirus or Network Associates' £50 Virex (Computers Unlimited, 020 8358 5857), install it, and keep it up-to-date.

➤Bottom line This is one case where the maxim "Better safe than sorry" clearly applies. You can think of antivirus utilities as an umbrella on a cloudy day. It may not even rain, and you may not need protection – but do you really want to take that risk?

If there's a silver lining in this cloud of troubleshooting, it's this: you can fix most Mac problems without having to open up your Mac or haul it in for repair. Usually, all it takes is a few minutes at your keyboard, and your Mac will be humming smoothly again. Try that with a PC.

MW



Speed things up

Through everyday use, your hard drive can become a mess, slowing you down and creating problems. A program such as Speed Disk, part of Norton Utilities, can help put things back in order.

Fire brands

Assess which FireWire hard drive is right for you.

By David Fanning

A couple of years ago, Steve Jobs announced that on all Macs, SCSI was out and FireWire was in. The shock that this caused those used to using SCSI was nothing to that felt by SCSI manufacturers.

Jobs wowed his keynote audience with a demonstration in which he played video from a FireWire drive. He pulled the plug on the drive and the video paused, but when it was hot-plugged – something that is potentially catastrophic with SCSI – the video carried on as if nothing had happened. With the exception of the SCSI people, everyone cheered and whooped.

Yet FireWire has failed to live up to this early excitement. Although most Macs released in the past year come with FireWire as standard, this is aimed more at digital video than storage.

But this is now changing, so *Macworld* put the new wave of FireWire storage products through their paces.

The drives we thought we'd get with the advent of FireWire are not the ones to have emerged. The plan was for FireWire to replace SCSI as a connection on the hard drives. However, what we have is a kind of halfway house: a FireWire connection to an external box and a IDE/ATA (Integrated Drive

PHOTOGRAPHY: MIKE LAVE

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<h3>MiniHD 6GB</h3> <p>This is the most portable of the drives tested. It's small enough to fit into a shirt pocket, though you'll need to stash the proprietary cables elsewhere. However, it isn't very fast. You can also use it with a USB adaptor, but if you have FireWire you should use it. At almost £50 per gigabyte, it's expensive.</p> <p>Macworld's buying advice The only reason to spend this kind of money is for portability. If you are prepared to opt for a larger model then you'll get a lot more for your money. It also fared poorly in the speed tests, where it was the slowest drive tested.</p>	<h3>FireHD 20GB</h3> <p>Big brother of the Arcos MiniHD, the FireHD offers much better value per MB. Although it isn't portable, it is relatively compact. The price, though, is above average for this size of drive: the LaCie 20GB drive is over £100 cheaper. Despite having a greater capacity than the other Archos models, its performance is below par. The only drive slower than the FireHD 20GB is the Archos MiniHD.</p> <p>Macworld's buying advice As one of the more expensive – yet slowest – drives tested, the FireHD has little to recommend it. It would need to be £100 cheaper for it to be worth considering.</p>	<h3>The Vault 45GB</h3> <p>First Storage products aren't so much about looks as value for money. The Vault is well named because it's grey and sterile in its looks.</p> <p>It performed very well against the competition, and at a price that is hard to beat too. If you aren't too fussy about peripherals not being colour co-ordinated and curvy this is a fine drive. The speed and price make it a good product.</p> <p>Macworld's buying advice Looks aren't everything, but at least the Vault performs well and is good value. If you want speed but don't want to pay for it, this is your choice.</p>	<h3>VST Technology</h3> <p>This is a beautiful drive. It's tiny and requires no power supply other than the FireWire connection. It even performed well in our speed tests. There is, though, one terrible problem: price.</p> <p>As this is a 3GB drive, the price per GB comes out as £93 – pricey compared to just over £6 per GB on some models. Of course, tiny portable drives are bound to be a little more expensive, but this seems a little excessive.</p> <p>Macworld's buying advice The larger capacity VST drives offer much better value for money. The 3GB version is great, but just costs too much.</p>	<h3>LaCie 20GB</h3> <p>LaCie was one of the first companies to release a FireWire hard drive. This means that it has more experience than most at building them. Also, LaCie is a big company that sells a lot of drives, so has economies of scale on its side. This means it makes inexpensive but top-performance drives. The case looks cool too – a dark blue with a glowing power light. One downside is that it has a one-year warranty only.</p> <p>Macworld's buying advice This is a good drive: it's fast, relatively cheap and looks cool. Its bigger brother is a better deal though.</p>																																																																																																														
<table><tr><td>Company</td><td>Archos</td></tr><tr><td>Capacity</td><td>6GB</td></tr><tr><td>Price</td><td>£299</td></tr><tr><td>Price per GB</td><td>£49.83</td></tr><tr><td>Warranty</td><td>One year</td></tr><tr><td>Interface</td><td>FireWire, USB</td></tr><tr><td>Software</td><td>Elgato Disk Controller</td></tr><tr><td>Contact</td><td>Channel Dynamics, New Century</td></tr><tr><td>Telephone</td><td>0870 607 0540</td></tr><tr><td>URL</td><td>020 8795 1177 www.archos.com</td></tr><tr><td>Star Rating</td><td>★★★/6.8</td></tr></table>	Company	Archos	Capacity	6GB	Price	£299	Price per GB	£49.83	Warranty	One year	Interface	FireWire, USB	Software	Elgato Disk Controller	Contact	Channel Dynamics, New Century	Telephone	0870 607 0540	URL	020 8795 1177 www.archos.com	Star Rating	★★★/6.8	<table><tr><td>Company</td><td>Archos</td></tr><tr><td>Capacity</td><td>20GB</td></tr><tr><td>Price</td><td>£319</td></tr><tr><td>Price per GB</td><td>£15.95</td></tr><tr><td>Warranty</td><td>One year</td></tr><tr><td>Interface</td><td>FireWire, USB</td></tr><tr><td>Software</td><td>Elgato Disk Controller</td></tr><tr><td>Contact</td><td>Channel Dynamics, New Century</td></tr><tr><td>Telephone</td><td>0870 607 0540</td></tr><tr><td>URL</td><td>020 8795 1177 www.archos.com</td></tr><tr><td>Star Rating</td><td>★★★★/6.6</td></tr></table>	Company	Archos	Capacity	20GB	Price	£319	Price per GB	£15.95	Warranty	One year	Interface	FireWire, USB	Software	Elgato Disk Controller	Contact	Channel Dynamics, New Century	Telephone	0870 607 0540	URL	020 8795 1177 www.archos.com	Star Rating	★★★★/6.6	<table><tr><td>Company</td><td>First Storage</td></tr><tr><td>Capacity</td><td>45GB</td></tr><tr><td>Price</td><td>£245</td></tr><tr><td>Price per GB</td><td>£8.17</td></tr><tr><td>Warranty</td><td>Three years</td></tr><tr><td>Interface</td><td>FireWire/USB</td></tr><tr><td>Software</td><td>Charismac; Anubis Disk Manager</td></tr><tr><td>Contact</td><td>FirstStorage</td></tr><tr><td>Telephone</td><td>020 7636 2200</td></tr><tr><td>URL</td><td>www.firststorage.co.uk</td></tr><tr><td>Star Rating</td><td>★★★★/8.2</td></tr></table>	Company	First Storage	Capacity	45GB	Price	£245	Price per GB	£8.17	Warranty	Three years	Interface	FireWire/USB	Software	Charismac; Anubis Disk Manager	Contact	FirstStorage	Telephone	020 7636 2200	URL	www.firststorage.co.uk	Star Rating	★★★★/8.2	<table><tr><td>Company</td><td>VST Technologies</td></tr><tr><td>Capacity</td><td>3GB</td></tr><tr><td>Price</td><td>£281</td></tr><tr><td>Price per GB</td><td>£93.83</td></tr><tr><td>Warranty</td><td>One year</td></tr><tr><td>Interface</td><td>FireWire/USB</td></tr><tr><td>Software</td><td>VSY HardDrive Controller</td></tr><tr><td>Contact</td><td>Computer 2000</td></tr><tr><td>Telephone</td><td>01256 868 008</td></tr><tr><td>URL</td><td>www.vsttech.com</td></tr><tr><td>Star Rating</td><td>★★★/6.6</td></tr></table>	Company	VST Technologies	Capacity	3GB	Price	£281	Price per GB	£93.83	Warranty	One year	Interface	FireWire/USB	Software	VSY HardDrive Controller	Contact	Computer 2000	Telephone	01256 868 008	URL	www.vsttech.com	Star Rating	★★★/6.6	<table><tr><td>Company</td><td>LaCie</td></tr><tr><td>Capacity</td><td>20GB</td></tr><tr><td>Price</td><td>£188</td></tr><tr><td>Price per GB</td><td>£9.40</td></tr><tr><td>Warranty</td><td>One year</td></tr><tr><td>Interface</td><td>FireWire</td></tr><tr><td>Software</td><td>Silverlining</td></tr><tr><td>Contact</td><td>LaCie</td></tr><tr><td>Telephone</td><td>020 7872 8000</td></tr><tr><td>URL</td><td>www.lacie.co.uk</td></tr><tr><td>Star Rating</td><td>★★★★/8.1</td></tr></table>	Company	LaCie	Capacity	20GB	Price	£188	Price per GB	£9.40	Warranty	One year	Interface	FireWire	Software	Silverlining	Contact	LaCie	Telephone	020 7872 8000	URL	www.lacie.co.uk	Star Rating	★★★★/8.1
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Electronics/Advanced Technology Attachment) connection to the hard drive. It's less elegant than the original idea, but it does seem to work.

IDE-connected drives have historically been seen as the poor cousin of the more robust SCSI interface. Macs used to use SCSI, and PCs tended to use IDE. More recently, Macs have used IDE/ATA drives, which are a cheaper alternative to SCSI. Conversely, high-end PCs occasionally offer SCSI as a more professional solution for storage.

Fuzzy on SCSI

This tradition of SCSI for high-end and IDE for low-end, has given rise to some common misconceptions. One, is that high-speed storage is strictly the domain of SCSI. However, when Macs first appeared with IDE drives, they matched their SCSI

equivalents, because, interfaces aside, the drive mechanisms are identical. When IBM or Quantum make a hard drive they may turn out as many as 12 variations, all with different interfaces – including the various SCSI flavours, IDE/ATA and even Fibre Channel. Drive speeds remain constant – but the options on how to transfer data varies.

Performance variations are minimal, but there are times when SCSI is best – when running a number of drives working either independently or as a RAID array, for example. This is because SCSI can handle drives simultaneously. IDE/ATA is designed only for single drives – even though it can be pushed to handle up to two or three.

So the fact that they use IDE/ATA behind the FireWire connection doesn't impact on performance.

FireWire runs at 400 megabits per second

(Mbps), which translates to around 50MB per second. This sounds slow compared with the 160MB per second often quoted with Ultra160 SCSI. This figure refers to maximum available bandwidth, rather than actual single-drive performance. Even with a RAID array, 160MB per second remains only theoretically possible with Ultra160 SCSI.

What, then, are the benefits of FireWire drives? First, new Macs don't have SCSI. If you're determined to own a SCSI drive, you'll need to spend extra cash on a SCSI card to drive it. Of course, if you've an iMac, or even a new Cube, SCSI isn't an option at all – leaving you with FireWire or USB.

If you're the owner of a Mac that doesn't have FireWire, then USB is your only option. USB, though, isn't ideal for storage because of its 1.2Mbps speed limitations.

FireWire is the best all-round option.

If you think all FireWire hard drives are created equal, think again. Although any manufacturer can put together a hard drive, an interface and a box and sell a proprietary FireWire drive, there's more to it than that. The key issues concern the quality of components used and the support and warranty offered.

All the drives tested performed reasonably well, except for the Archos models. These come with a choice of adaptors: USB, FireWire or, for PC users, a Serial connection. In order to support this choice of interfaces, performance falls to almost USB levels – making Archos drives a poor deal for FireWire-based storage. However, they are portable – and therefore useful for making backups on the road.

One of the main reasons for needing extra



EZQuest Cobra 60GB

This 60GB monster is big. The case is hefty, though thoughtfully designed. It comes in silver, which seems to be the only colour that manufacturers think is safe to go with the chameleon-like Mac range. However, it's quite pleasing to the eye. The price is just about right, too. If 60 GB is too big, or too small, there are more in the range to choose from – from 20GB up to 75GB, all in matching silver livery.

Macworld's buying advice It may be big and beefy but it looks great.

Company	EZQuest
Capacity	60GB
Price	£539
Price per GB	£8.98
Warranty	Three years
Interface	FireWire
Software	Elgato Disk Controller
Contact	Channel Dynamics
Telephone	0870 607 0540
URL	ezq.com

Star Rating ★★★★★/7.6



One Technologies One Pro 45GB

At just £6.64, the One Pro 45GB has the cheapest per-GB cost of all drives tested. It also compares well on speed. Although it is £28 cheaper than the LaCie 45GB its case is substantially bigger and its warranty isn't quite as attractive: one year for the drive and three years for the IBM mechanism.

Macworld's buying advice This is a cheap and fast drive, but the LaCie pips it with its extra features. Like the Vault, it isn't about to win any beauty competitions – but it is good value.

Company	One Technologies
Capacity	45GB
Price	£299
Price per GB	£6.64
Warranty	One year/three years
Interface	FireWire
Software	DiscControl 1.0.1
Contact	New Century
Telephone	020 8795 1177
URL	www.macsol.co.uk

Star Rating ★★★★★/8.3

design

breakdown

specs

storage is to accommodate large files – typically digital video. A FireWire digital camcorder and iMovie make for a storage-hungry Mac. A five-minute iMovie can swamp smaller drives, and it won't be long before you're looking for bigger models.

But there remain questions about how suitable FireWire drives are for this purpose. In our tests, getting video to record to a

FireWire hard drive from a DV video camera led to dropped frames – a disaster when video editing. We got better results by recording directly to the internal hard drive.

The fault is likely to be the bridge between the FireWire and IDE/ATA, because FireWire can obviously handle the required 5MB per-second rate – the video is being carried to

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FireWire hard drives compared

Best results in test. Longer bars are better. Results are in MB/sec

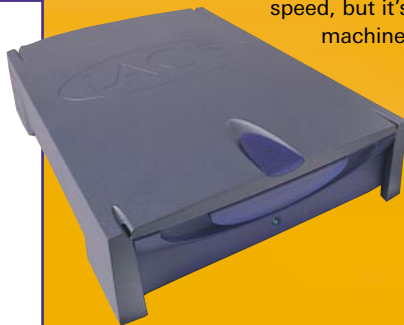
Company:	Product Name:	100MB file write	100MB file read	10MB of 20K files write	10MB of 20K files read	Average transfer rate
Archos	Mini HD 6GB FireWire HDD	2.54	4.23	3.95	7.09	4.45
Archos	FireHD 20GB FireWire HDD	2.69	4.75	5.28	7.67	5.10
EZQuest	Cobra 60GB FireWire HDD	5.21	5.44	5.81	5.68	5.53
First Storage	The Vault 45GB FireWire HDD	5.48	5.58	5.68	5.44	5.55
LaCie	20GB FireWire	5.34	4.90	6.32	4.96	5.38
LaCie	45GB FireWire	5.59	5.85	6.05	5.63	5.78
Micronet	SanCube 135GB	5.26	5.36	5.15	5.47	5.31
One Technologies	OnePro 45GB FireWire	5.39	5.50	5.52	8.27	6.17
VST Technologies	VST USB/FireWire HDD 3GB	5.71	6.90	6.05	7.11	6.44

Behind our tests All drives were tested while connected to a standard 400MHz Power Macintosh G3. Results are shown as MB per second – tests involved copying a 100MB Photoshop file to and from the drives. To simulate smaller Web files we filled a folder with 20K files. This folder was used for the 10MB tests.

LaCie 45GB

Like its 20GB counterpart, the 45GB is stylish. But, unlike the 20GB model, the larger version has a longer five-year warranty – the best warranty offered by any of the manufacturers. This shows LaCie's confidence in its products. The bigger capacity also gives one of the lowest costs per GB, at just over £7. This isn't the lowest price per GB, but, together with its design and the five-year warranty, it adds up to a top choice.

Macworld's buying advice It may not be a winner on price or speed, but its balance of features make it the best all-round machine.



Company	LaCie
Capacity	45GB
Price	£327
Price per GB	£7.27
Warranty	Five years
Interface	FireWire
Software	Silverlining
Contact	LaCie
Telephone	020 7872 8000
URL	www.lacie.co.uk

Star Rating ★★★★★/8.7

Micronet SANcube

The SANcube is a different kind of FireWire hard drive, designed to be shared between more than one user. The model we tested had a capacity of 135GB, and was set up for two users. The AccelWare software provided lets you share the data by switching access between users. It isn't the most convenient way of working, but for big files it's fantastic. For faster access, you can set the three internal disks up as a RAID array. This means that they work together as one fast drive.

Macworld's buying advice The SANcube won't meet everybody's needs, but it deals with humungous files in a time-saving way. If you need a huge storage option, this is the one to go for.



Company	Micronet
Capacity	135GB
Price	£2,020
Price per GB	£14.96
Warranty	One year
Interface	FireWire
Software	AccelWare
Contact	United Digital
Telephone	01926 810 000
URL	www.micronet.co.uk

Star Rating ★★★★★/8.5

the drive via FireWire anyway, and the internal IDE/ATA drives found on DV iMacs can also handle data at that speed.

Alternatively, the problem could be because the two in-built FireWire ports are being used simultaneously – one for the camera and one for the drive.

All the tested drives are theoretically fast enough for video editing, but there are limitations on how you can use them. If you're serious about video, it may be worth paying extra for SCSI-based storage. This is unfortunate, because FireWire has so much to offer – but even the occasional glitch can

ruin what would otherwise be a great video.

Video editing worked perfectly well from the external drives, though. If you have a big internal drive, you can capture to that and transfer the files to the FireWire drive without any problem. When it's time to transfer the edited footage to tape, simply switch the final product to the internal drive again. This isn't an ideal solution, but is better and cheaper than most other options.

Portability

If you frequently work on the road, it's possible you're armed with a PowerBook stacked with critical data. This is far riskier than storing information on a desktop machine, because laptops not only get dropped, but stolen. It's possible to use Zip disks, or even portable CDRs – but there's nothing so reassuring as having a complete hard-drive backup, ready to be transferred to a new or repaired machine.

A few of the drives tested are portables, including the Archos MiniHD and the VST. Just remember, keep your backup in a different bag to the PowerBook.

Only one of the drives tested – the SANcube – takes a novel approach to storage. The SANcube isn't a simple storage add-on. The SAN stands for storage area network, which means it's a hard drive accessible by more than one user via FireWire rather than any ethernet.

Essentially it's a big box loaded with three hard drives. On its back are two or more FireWire ports. Unlike a normal FireWire drive, the ports are not for daisy-chaining peripherals, but for attaching to individual computers. This means each drive can be allocated a different user, with maybe one shared by all. The disappointing thing is that, in practice, the SANcube doesn't allow multiple accessing of files from different machines. The solution is software called AccelWare. This allows access privileges to be swapped as and when the users need it. It isn't the most elegant solution, but if you've ever needed to transfer 10GB of data over a network you'll know elegance isn't the primary objective.

Macworld's buying advice

Earmark the capacity you need and the price you're willing to pay. Speed is largely standard across the field. If portability is a requirement, then this comes at a higher cost. Warranties are important and the LaCie models came out tops here. Remember, no matter how extensive the warranty, it will only ever cover repair or replacement – not data recovery. This means that backing up is just as essential as ever.

The LaCie 45GB got the Macworld Editors' Choice award for the best mix of design, performance, price and warranty. The SANcube is a more specialized product, so it wins the Editors' Choice for its handling of huge files without the use of a network. **MW**




Inside XML

Will these three letters change the Web forever?

By Lisa Schmeiser

Staying up-to-date on the latest tech talk is difficult – and keeping your business humming with the most-recent technology can seem nearly impossible. You must be able to publish in print and on the Web, and, pretty soon, you'll also need the tools to deliver information to cell phones, Internet appliances, ebooks, and countless other gadgets.

The new wave of computer gizmos poses a significant challenge to creative professionals. How do you keep current and compatible with the ever-changing world of technology? Although the answer isn't exactly simple, it's easy to learn, easy to understand, and easy to use. Welcome to XML.

Few people know what XML is, and chances are, even fewer know that it stands for Extensible Markup Language. But don't be afraid of what you don't know. XML promises to make Web publishing as simple as a primary-school grammar lesson. And *Macworld's* in-depth XML tutorial will show you what it's all about. [page 102](#) 

“The way a browser interprets a mark-up language is similar to the way a person understands a spoken language.”

To understand XML, you must go back to its roots and look at the parent languages – HTML and Standard Generalized Markup Language (SGML) – that spawned this new dialect. HTML possesses several attributes that make it the perfect enabler for creating an easily accessible, global network. It's a non-centralized way of putting information into a file and guaranteeing readability across a wide variety of networks. The content is marked-up with a series of tags that designate what kind of information is being read. For example, an article's headline and contents would be marked up like this:

```
<h1>Headline: All headlines in standard HTML are enclosed in tags like this.</h1>
<p>Paragraph: Individual paragraphs are enclosed in tags that mark each paragraph as a discrete chunk of information.</p>
```

HTML owes much of its success to SGML, which was founded on a generic-coding concept: devise a flexible, precise, and descriptive vocabulary for expressing the contents of electronic documents. This vocabulary defined a document's structure and organization, thus making it easily readable across several different types of applications – provided those applications could read SGML. SGML is still widely used by people with very complex information to organize, such as librarians or editors creating large-technical documents.

SGML flourished because it gave documents unprecedented portability. The language's downside was its complexity, and HTML was created in part to provide a quick and easy tool for accomplishing portability across networks.

However, HTML lacks two characteristics that Web developers and users demand: easily-indexable data structures and customizable appearances. Because HTML provided only a very basic document structure, people who wanted to mark-up data in a way that would reflect the underlying organization of their content were out of luck. Site creators who wanted to control the appearance of content were even unluckier.

Early in the Web-development game, HTML's document-structure tags, such as <p> and <body>, got tied up with document-appearance attributes, such as . As a result, many Web sites became elaborate nests of tables, font tags, and images. Web designers often succeeded in specifying how a site should look, but they did so at the expense of a document's structure. The end result was a lot of work for the people charged with maintaining the site.

For example, a Web-site designer might put all headlines in a big, bright-red Arial font. Any reader who sees this using the correct browser may deduce that any

instance of big, red text is a headline. But from a mark-up-language grammar perspective, the document is disorganized. There is no way to tell which tags are meant to identify the headline. XML solves that problem by providing a data-encoding method that can be easily defined and exchanged across several different computers.

XML and HTML compared

As mentioned earlier, HTML falls short in two critical areas: organizing information into categories or hierarchies is difficult; and controlling the appearance of items on your page is not straightforward either. When it comes to organizing information, HTML coders rely on a series of headings – headline sizes that can denote a hierarchy: <h1> through <h4>.

The headings work well if you're organizing a document according to a strict outline, but not all types of information fit neatly into this model. For example, if you wanted to mark-up a document about swimming, you might have the following groups of information: types of swimming strokes; distance of different races; and composition of races by strokes.

In HTML, there's no neat way to indicate that these different groups of information are related, but not nested within each other. In XML, however, you can write a Swimming Markup Language and set up elements such as:

```
<stroke></stroke>
<race></race>
You can also set up sub-categories within each
to indicate different kinds of strokes and races. For
example:
<stroke>
  <butterfly></butterfly>
  <breast></breast>
  <back></back>
  <freestyle></freestyle>
</stroke>
or
<race>
  <100></100>
  <200></200>
</race>
```

Best of all, you can then group the different elements together to create more-complex data:

```
<race="IM">
  <stroke>
    <butterfly></butterfly>
    <breast></breast>
    <back></back>
    <freestyle></freestyle>
  </stroke>
</race>
```

This would indicate all the different strokes that make up the "IM" race. Organizing data like this in HTML would be very difficult – there would be no way for you to draw distinctions between the information.

A further drawback to HTML's system of headings and text is the lack of control you have over a site's appearance. Although you can write stylesheets to specify how different HTML elements such as <h3> or <p> look, you can't easily attach a specific appearance to recurring data.

For example, you might decide that all instances of a site's name must appear in blue. In HTML, there's no easy way to do this – you would have to search for the word AcmeCo, for example, and attach tags such as AcmeCo to each instance.

XML lets you create a tag called <company> </company> and use it to enclose every instance of AcmeCo. To change the appearance of AcmeCo, you simply write a stylesheet to control the appearance of whatever appears within <company></company>.



It's all Greek to me

Even though the terms are in English, you may not be able to make sense of all the XML jargon. Our glossary will help you separate the Greek from the geek.

data	The two types of information that describe an entity – character and mark-up. Character data explains the content in an entity, and mark-up data describes the logical structure – where it goes – of the entity.
Document Type Definition (DTD)	A file containing the formal definitions that will describe the content structure and attributes within a document. A DTD dictates what names will be used for different tags – also known as elements – how frequently elements can occur, and how assorted elements fit together.
DTDless	A file created without a DTD. Because writing a DTD is often a complex and time-consuming task, XML can also work without a DTD.
element	A building block for a mark-up language's structural organization and content. For example, <link> would be an element specifying the relationship between different documents.
entity	A widely used term, with several definitions. Entities are usually coded into a document's DTD. They can perform repeated tasks, such as setting up nicknames for frequently referenced data. Instead of typing Go to Macworld.co.uk every time, you could create an entity such as <!ENTITY mw "Go to Macworld.co.uk">.
Standalone Document a Declaration (SDD)	If your XML document doesn't have DTD, it must tell the application reading it that it's an SDD. To alert the XML-reading application to the document's DTDless state, the XML document in question should include an SDD.
Standard Generalized Markup Language (SGML)	The international standard for setting the descriptive rules of electronic documents' structure and content. SGML spawned both XML and HTML. Just as different dialects alter textbook English, these mark-up languages are considered variants.
XSL	Extensible Stylesheet Language is an XML-based language devoted to specifying a visual style for the items in an XML document.

Behind the scenes

Before you try your hand at XML, you'll need to familiarize yourself with its lingo. The way a browser interprets a mark-up language is similar to the way a person understands a spoken or written language. Just as a person learns grammar and vocabulary to interpret strings of words, a browser has the ability to understand a file's set of rules and vocabulary. With mark-up language, the companies that make the browsers determine what a browser will read and understand.

Fortunately, these companies don't have to invent the grammar and vocabulary their browsers will understand – the World Wide Web Consortium (W3C) has already done that. The W3C is the closest thing the Web has to a governing body. It decides on the technical protocols that computers connected to the Net must be able to recognize and implement. The W3C's recommendations outline what the grammar and vocabulary that compose a mark-up language should be.

If a browser's going to recognize an XML document, it must understand four W3C recommendations, which work in concert to render XML pages. If you write XML without meeting these recommendations, your code won't work.

XML The grammar for mark-up languages, XML is the general guideline to follow when writing different languages that will organize and present your site content.

XML Linking Language (XLink) Hyperlinking is the core of what makes the Web work. XLink is a W3C recommendation that outlines hyperlink behaviour. In

other words, it tells the browser what it should do when it encounters a hyperlink in a document.

XML Extended Pointer Notation (XPointer) If XLink dictates how links behave, XPointer specifies what information those links contain. Hyperlinks now simply point to a document address – they don't actually contain any information. XPointer supplies a way to add highly specific information about the role particular links play, relative to the rest of the content in a document. For example, links in a navigation bar can now specify which page they should point to, in addition to specific addresses. This means you can more easily track hyperlinks and change them across an entire site – instead of changing a specific hyperlink-address on several thousand pages, you can change it once, and the other links will all redirect based on the altered information.

Extensible Style Language (XSL) XML documents are controlled by a stylesheet – the only question is which type of stylesheet to use. The newcomer in the stylesheet market is Extensible Style Language, an XML-based recommendation drafted specifically for XML documents. The biggest difference between XSL and CSS (Cascading Style Sheets – for more information, see “Designing flexible Web sites”, Macworld, October 2000) lies in the language used to write the stylesheets: XSL is XML-based, and CSS is not.

XLink, XPointer, and XSL are written using XML syntax, and all three protocols help to build a typical XML Web

Find out more about XML

Want to take your XML knowledge to the next level? Start with these informative Web resources.

XML.com
www.xml.com

Anyone interested in staying up-to-date on the latest XML developments should save this url. Sporting everything from product news to beginners' tutorials, this site also boasts columns and how-tos from XML gurus.

XML software
www.xmlsoftware.com

If you're itching to try XML on your own, it helps to have browsers and tools that can render and convert it. Check out the complete collection of XML-centric applications.

The XML cover pages
www.oasis-open.org/cover/sgmlnew.html

For XML news – from tracking the progress of the latest XML-related W3C recommendations and newly launched XML sites – this site has it all.

page: XML might determine a page's appearance; XLink and XPointer determine what the links will do on the page. The page's content will be organized and marked up using an XML Document Type Definition (DTD).

The four protocols are the building blocks – what makes them all tick is the DTD. If XML is like mark-up-language grammar, the DTD acts as the mark-up language's dictionary and style guide.

A DTD defines the terms of an XML-based document, the specific details each term has, and the relationships the terms have to one another. The DTD excerpt below identifies common elements in a mark-up language designed to format Shakespeare's plays.

```
<!ELEMENT SPEECH (SPEAKER+, (LINE | STAGEDIR | SUBHEAD)+)>
<!ELEMENT SPEAKER (#PCDATA)>
<!ELEMENT LINE (#PCDATA | STAGEDIR)*>
<!ELEMENT STAGEDIR (#PCDATA)>
```

The elements identified are: speech, to be used when a character is making a speech; speaker, to be used to identify characters with speaking roles; line, to designate each line in a speech; and stagedir, which dictates the directions that accompany the speech. These elements can be nested.

Although one of the biggest advantages to developing a site in XML is having the ability to set up your own logical data-structure via a customer-built DTD, another advantage is being able to use a different, standard DTD. These DTDs can be specific to industries – imagine a group of mark-up tags devised especially for accountants – or other, already established, means of organizing content. For example, Jon Bosak has written DTDs for Shakespeare plays, thus providing a grammar for denoting characters and their lines (<http://metalab.unc.edu/bosak/xml/eg/shaks200.zip>).

The DTD is crucial for providing the “rules” in an XML document or on an XML site. Since we're still in an HTML world, most Web documents have HTML DTDs – if they have DTDs at all – and a general syntax to organize mark-up tags. How, then, will you move the Web pages you have from one type of mark-up language to another?

The missing link

Changing a Web site's mark-up language from HTML to the more advanced XML is an evolutionary step. Extended HTML (XHTML) mixes HTML's limited vocabulary with XML's data-organizing capabilities. To make the transition, you must follow a number of simple format rules:

- All mark-up must be rendered in lower-case tags:
`<h1>my page title</h1>`
- All attributes must be rendered within quotes:
`<body bgcolor="#FFFFFF">`
- All elements must possess opening and closing tags:
`list item`

■ All documents must have a DTD. XHTML authors can choose from three different XHTML DTDs, all of which are hosted on the W3C's Web site (www.w3.org).

To attach a DTD to your document, you need a statement at its beginning called a doctype declaration, which says what sort of DTD the document uses, and where the DTD lives.

For example, to include a strict doctype declaration – which assumes you're using strict XHTML – in your document, put these lines at the very top:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/strict.dtd">
```

The transitional doctype-declaration is the most flexible – you use it if you're trying to ensure that people using non-CSS-enabled browsers can see your site. If you're still using tables to lay out your Web site, you'll want to use this one:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/transitional.dtd">
```

The frameset declaration is what you use if you're writing a document with frames. Its syntax is:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Frameset//EN"
"http://www.w3.org/TR/xhtml1/DTD/frameset.dtd">
```

Once you've converted your site to XHTML, you can use an XML DTD to refine the way your site's content is organized through defined mark-up tags. Novice DTD writers can also check out www.dtd.com to find a well-sorted directory of DTDs – designed for everything from advertising, to ontology and travel. You can also check out a list of Web sites that have integrated XML into their content at XMLTree (www.xmltree.com).

Although it's tempting to begin plotting your site's conversion from HTML to XML, it's easy to get bogged down in practicalities. Developing a specific mark-up language is only part of the process – you must also figure out how to map your current HTML content to a more structured XML mark-up.

In addition, there will be a learning curve – many Web developers are quite familiar with HTML because they've been using it for a long time. Acquiring the same familiarity with XML – and the tools you can use to develop Web sites in it – will require practice.

Within a year, however, building XML-based Web sites based on different DTDs or XML-based mark-up languages should be simple. And in the end, getting your content out to all the people who want to see it will be that much easier.

MW



Cast-out unwanted colour

Banish disfiguring colour-cast with Adobe Photoshop. By David Blatner

Although the human eye is capable of detecting thousands of different hues and tones in a single glance, we often end up seeing exactly what we expect to see. For example, take three pieces of white paper collected from different sources – a white napkin, a sheet of copier paper, and a catalogue page.

Individually, each sample looks as though it's neutral white. It's not until you place them side by side that you see a colour cast – subtle tints of yellow, blue, or magenta.

Such colour casts commonly create problems in scanned photographs. An image may appear neutral on screen – and perhaps even in a printed proof – but when you place it next to other images, or on a bright-white sheet of paper, you discover a slight tint.

Clearly, some images should have a colour cast – for example, a photo taken at the beach just before sunset – but many others should not. Using Adobe Photoshop, I'll show you how to strip away unwanted colour-casts simply by neutralizing the black, white, and grey pixels in your image.

David Blatner is a co-author of *Real World Photoshop 5*, and the author of *The QuarkXPress 4 Book* (both Peachpit Press, 1998)

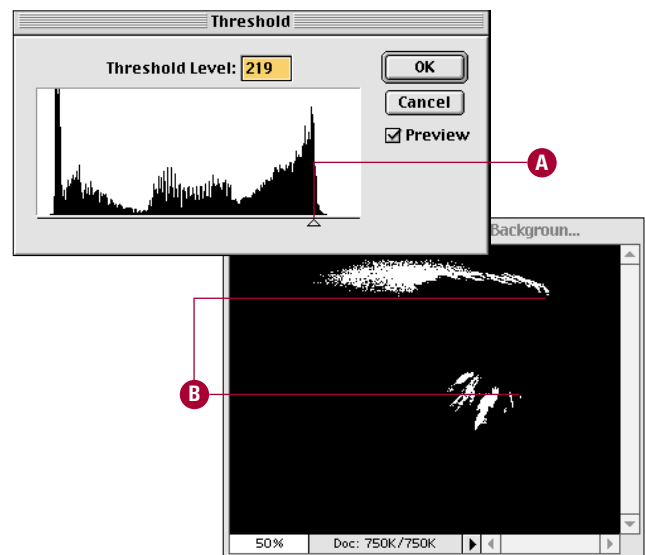
page 110

1

Find the highlights At first glance, the bird's feathers in this photograph appear to be white, but closer inspection reveals a blue or cyan cast. By neutralizing the image's white and black pixels, you can correct the entire image and return the eagle to its true shade.



■ To locate the image's highlight and shadow pixels, use Photoshop's Threshold command, which converts the photograph to a high-contrast black-&-white image. From the Image menu, open the Adjust submenu and select Threshold.



■ Find the image's highlights by moving the Threshold slider (A) to the right end of the histogram. This reveals the location of the lightest areas – at the eagle's crest and below the eye (B).

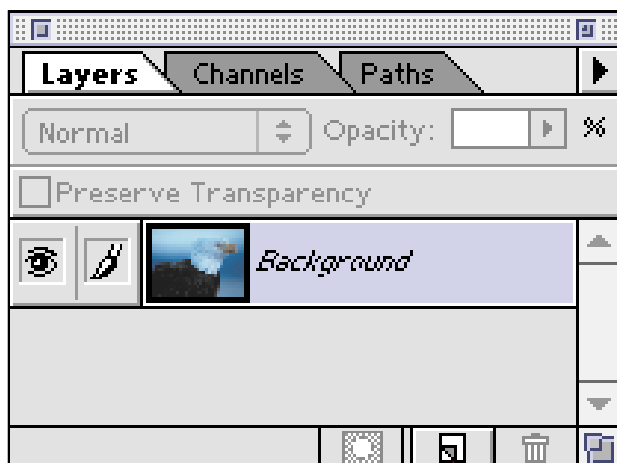
■ Move the slider in the opposite direction to find the image's darkest areas – in this case, the feather tips in the lower left corner.

■ Click on Cancel to leave the dialogue box and return to the colour image.

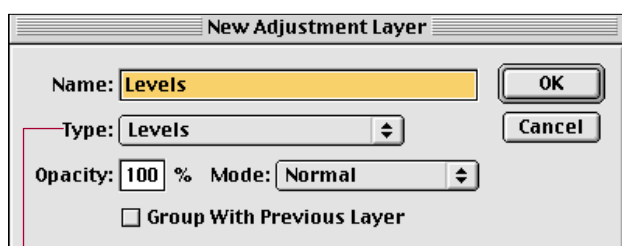
2

Create adjustment layers Once you've identified the highlights and shadows, use an adjustment layer to correct the image. These layers let you apply a tonal or colour adjustment – such as Curves or Hue/Saturation – as a layer rather than changing the actual image data.

- Adjustment layers have several advantages over applying changes directly to your document. First, you can always go back and change layers without adversely affecting the image itself. Adjustment layers also give you an easy way to judge results – just turn the layer on and off.



- Create a new adjustment layer by ⌘-clicking on the New Layer button at the bottom of the Layers palette (A).

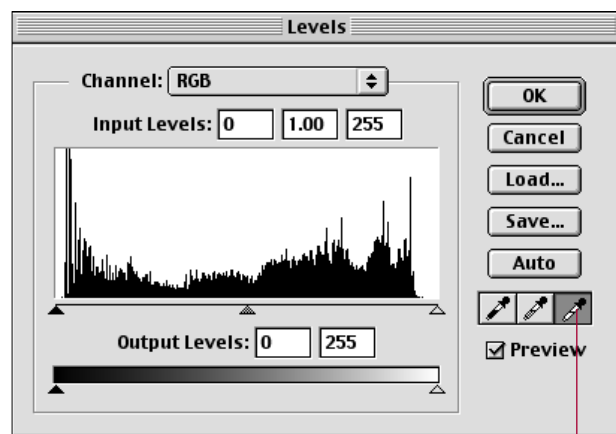


- In the New Adjustment Layer dialog box, specify what type of layer you want to use (B) and click on OK. In this case, I've chosen Levels. If you prefer, you can use Curves – you'd follow the same steps.

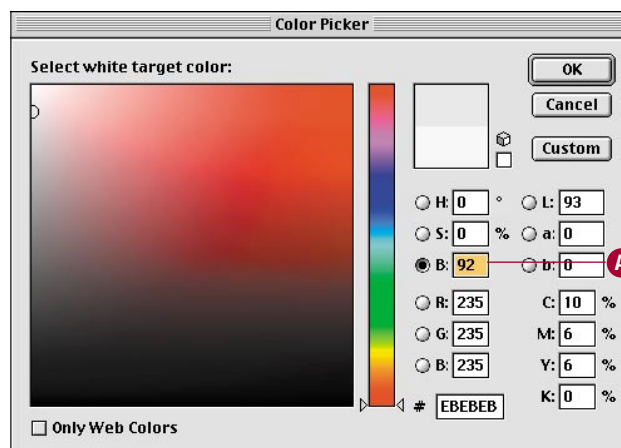
3

Adjust your highlights Next, you need to change your image's highlight and shadow pixels – which currently have a colour cast – to the correct neutral colours. To do this, use the black-&-white eyedropper tools in the Levels dialogue box.

- TIP:** When you create the adjustment layer, Photoshop automatically opens a Levels dialogue box. Later, if you want to change your settings, simply double-click on the adjustment layer in the Layers palette to reopen it.



- In the Levels dialogue box, double-click on the white-eyedropper tool (A) to display the Color Picker dialogue box.

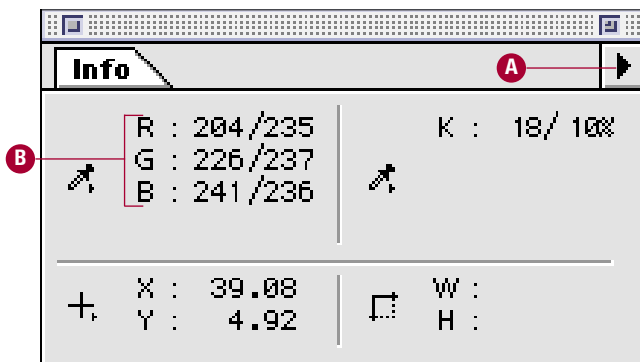


- The Color Picker dialogue box lets you specify the correct neutral colour for your highlights. To retain some ink in the lightest parts of your image, don't use solid white for the highlight. Here I've set brightness to 92 per cent, which results in an eight-per cent-neutral colour (B).
- By using the Brightness setting, you avoid the hassle of figuring out proper RGB and CMYK values for neutral colours. You might want to select a darker neutral, depending on the needs of your output device. Click on OK.

4

Choose your pixel You're now ready to apply the new, colour-correct eyedropper colour. Take care though, picking a pixel outside the highlight area can drastically degrade the image quality. If that happens accidentally, just choose a different, more appropriate pixel.

■ If you don't see the Info palette, open it from the Windows menu. If the palette doesn't already display RGB values, open Palette Options from the window's pull-down menu (A) and change one of the Modes to RGB.



■ With the adjustment layer's white-eyedropper tool selected, press ⌘-plus (+) to zoom in on the area of the image containing the highlights you found in step one.

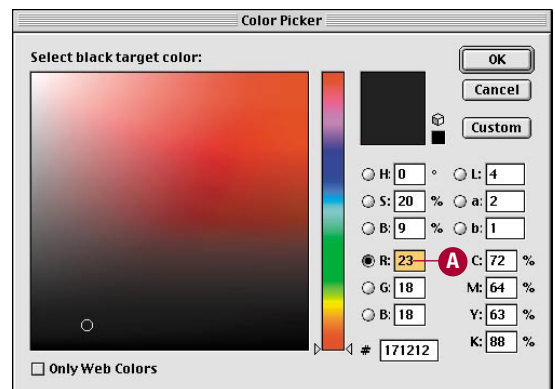
■ Using the Info palette's numbers as a guide (B), search the area for the pixel that best represents a neutral white – it should have approximately equal R, G, and B values.



■ When you find the right pixel, click on it with the white eyedropper. Photoshop then forces that pixel to match the colour you set in the Color Picker. Once you select a pixel, the Info palette displays its values before and after the effect – separated by a slash. If you don't like the change, use the first set of numbers to choose a different pixel.

5

Set your shadows After you've set the highlight, it's time to adjust the shadows. Repeat steps 3 and 4 using the black-eyedropper tool. Sometimes it's difficult to find a true neutral black, so you may wish to target a slightly off-neutral colour.



■ With the adjustment layer's Level dialogue box still open, double-click on the black-eyedropper tool to reopen the Color Picker dialogue-box.

■ Set the black eyedropper tool to a neutral, near-black colour. In this case, I didn't want a completely black shadow because the feathers are actually brownish, so I added a tiny amount of red (A). Then click on OK.

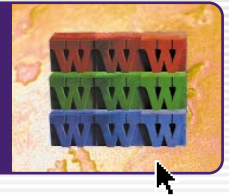
■ With the black-eyedropper tool selected, click on a pixel in the darkest area of your image. Thanks to step one, I know the darkest pixels appear in the lower left corner of the image. The pixels will then snap to the neutral – or off-neutral – colour you selected.

■ You can see from the finished image that the eagle has finally lost its blue cast.



More info: www.macworld.co.uk

For more information, search Macworld Online for reviews, tips and tricks on how to get the most out of Adobe Photoshop.



Rollover LiveMotion

Use Adobe LiveMotion to create remote-rollover buttons. By Molly Holzschlag

Adobe LiveMotion is a great tool for Web enthusiasts and professional designers. It lets you create static and motion graphics easily, thanks to its familiar Adobe interface.

LiveMotion independently modifies individual images, so creating sophisticated effects, such as remote rollovers, is relatively simple. Unlike standard rollovers, which swap one graphic with another, remote rollovers allow one graphic to trigger the behaviour of another. For example, say a page on an animal lover's site shows a Pat The Cat button on the left and a blank space on the right. When you mouse over the button, a picture of a contented cat appears in the space. As the mouse moves off the button – called mouse out – the cat disappears.

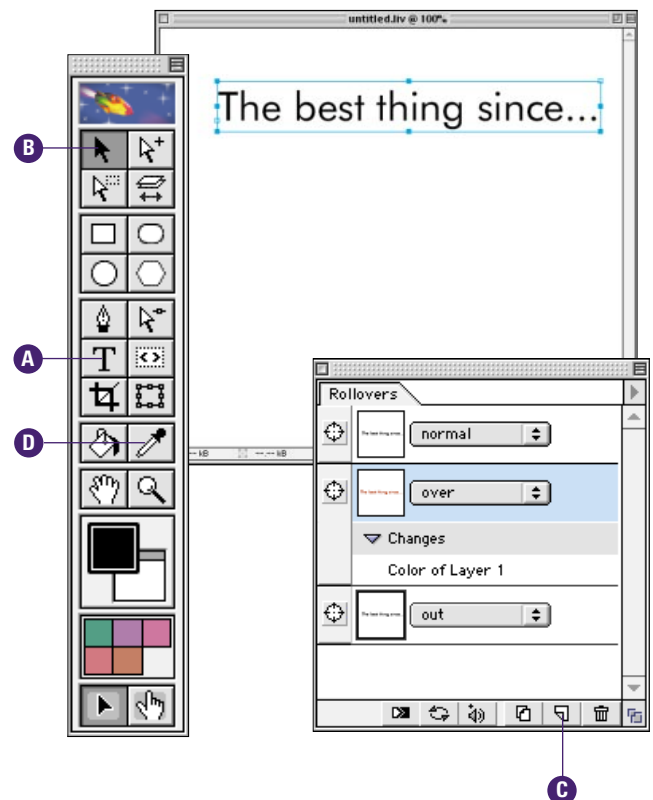
Remote rollovers add interactivity and a bit of fun to Web sites. I'll show you how to create basic remote-rollovers and then export them in formats that almost all Web users can see. If you want to try before you buy, download a free 30-day trial from www.adobe.com/products/livemotion.

Molly Holzschlag is the author of *Teach Yourself Adobe LiveMotion in 24 Hours* (Sams, 2000).

1

Design the trigger object The first task is to create a trigger – the object people see when they load the page. After you create or import the trigger in LiveMotion, you'll add standard rollover-states to it (Normal, Over, and Out).

■ To create a canvas, select New from the File menu and click on OK to accept the default composition settings. Make a trigger object in the program, or place a pre-made object. I used the type tool (A) to create a text trigger.



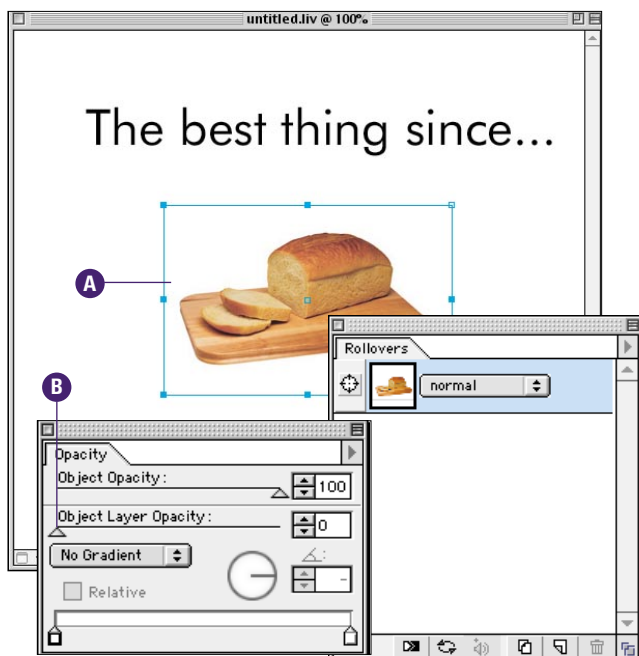
■ Next, produce standard rollovers for the trigger object. Select the object with the pointer tool (B). In the Rollovers palette (choose Window-Rollovers), click on the New Rollover State button (C). The Over state will appear in the palette.

■ Select the Over state and change the trigger object's appearance. Because I wanted the object to change from black to brown when it was moused over, I selected the object and used the eyedropper tool (D) and the colour picker (choose Window-Color) to grab a different colour.

■ Click on the New Rollover State button again to create an Out state. I made my Out colour black, the same as my Normal colour.

2

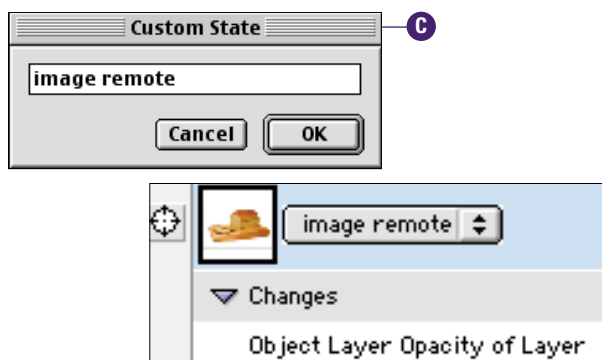
Creating the remote object The remote object – the one that appears when you mouse over the trigger object – can be simple or complex, and it can appear anywhere on the page. As you do for the trigger object, you create separate Normal, Over, and Out states for the remote object.



■ Place the remote object (A) (File-Place). Select it, and in the Rollovers palette, you'll see the Normal state.

■ Because I wanted my remote object to be invisible at first, I set its Normal-state opacity to 0 by moving the Object Layer Opacity slider (B) in the Opacity palette (Window-Opacity) to 0.

■ Click on the New Rollover State button. When the default Over state appears, choose Custom State from the pop-up menu. In the resulting dialogue box (C), name the state. I named mine image remote. For this state, I set the Object Layer Opacity slider to 100 per cent, because I wanted the remote object to appear when someone moused over it.



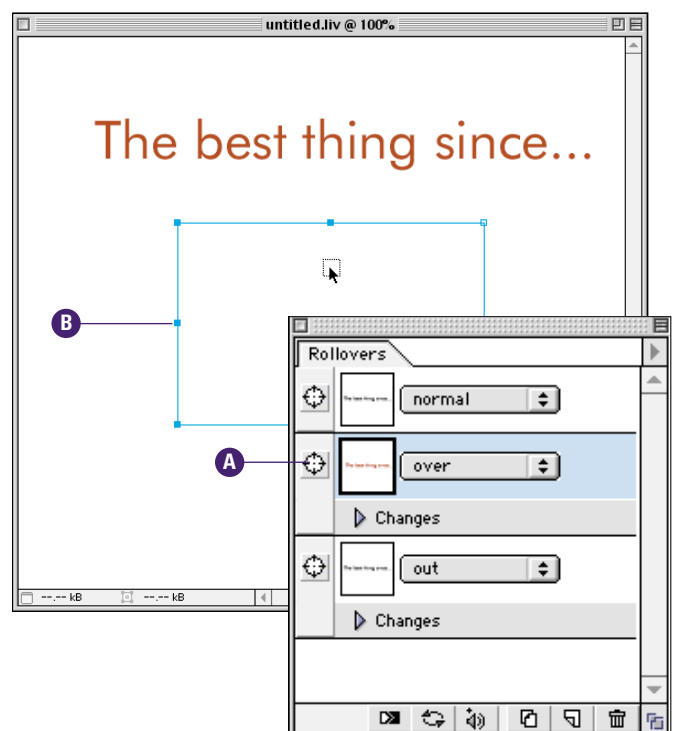
■ Click on the New Rollover State button again. Choose Out from the pop-up menu. Now you can control what the object looks like when the mouse leaves it. I set the Object Layer Opacity slider to 0, making it disappear on mouse out.

3

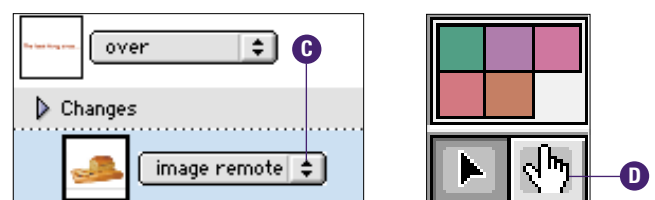
Connecting the trigger and the remote objects

Now you have rollovers for the trigger and remote objects, but the rollover states aren't connected between objects. To make that connection, you'll target the corresponding rollover state in the Rollovers palette.

■ Select the trigger object. In the Rollovers palette, highlight the first state in which a rollover occurs. In my example, that's the Over state. Drag the targeting button – to the immediate left of the Rollover thumbnail (A) – from the palette to the remote object. When the boundary box of the remote object appears (B), drop the target.



■ The remote object now appears in the Rollovers palette, underneath the Over state. From the pop-up menu (C) choose the corresponding rollover state for the remote object – here, Image Remote.

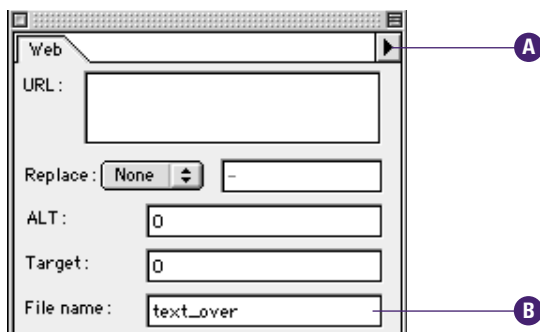


■ Connect the Out states in the same way.

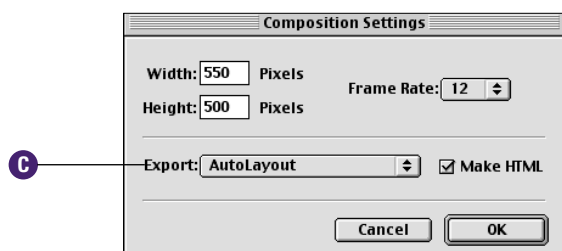
■ To preview what you've done, click on the Preview button in the Tool palette (D), and then pass your mouse over the trigger object. If it triggers the remote event, you're on the right track.

4

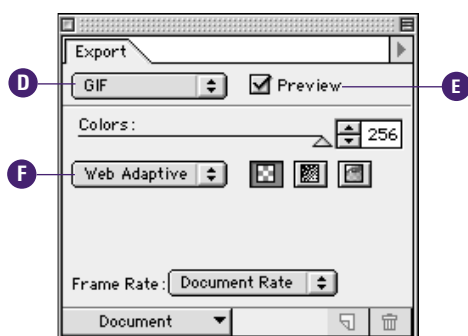
Prepare for export You can save this remote rollover as a Flash file and embed it in an HTML page. However, if your audience isn't likely to have the Flash plug-in, I recommend saving your rollover as HTML and JavaScript.



First, name your images. Select the trigger object. Open the Web palette (Window-Web). If you don't see a File Name field, choose Detail View by clicking on the arrow in the upper right of the palette (A). In the File Name field (B), enter a name for the trigger image. I named mine text_over. Click on the remote object and name it using the same method.



Next, choose Edit-Composition Settings. When the dialogue box appears, choose AutoLayout from the Export pop-up menu (C). Select the Make HTML option. Click on OK.

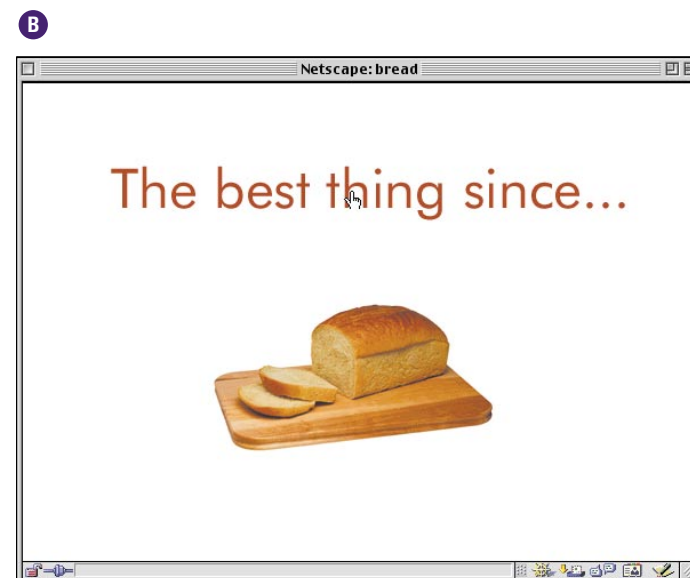
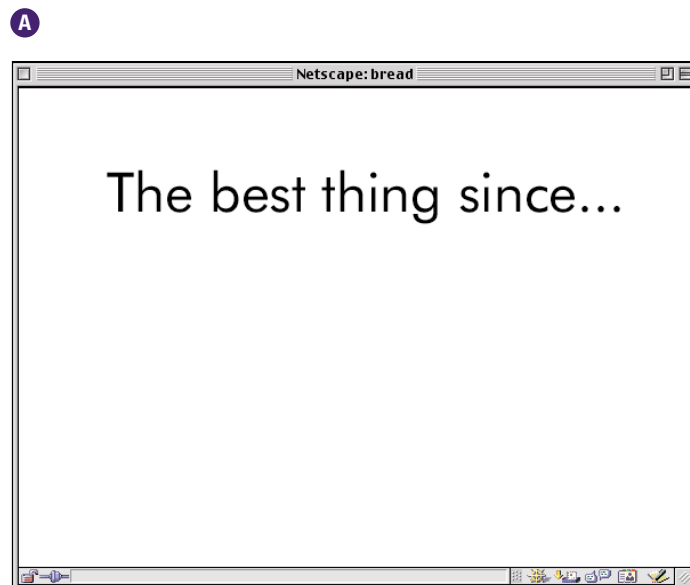


Open the Export palette (File-Export Settings). Choose GIF or JPEG from the pop-up menu (D). If you're not sure which format to use, click on the Preview check box (E) and test your design using different settings. Use the Web Adaptive option (F) to limit the number of colours in the composition – this makes the size of the graphic files smaller.

5

Exporting HTML and JavaScript Exporting HTML and JavaScript Exporting is the last stage of creating a remote rollover. You can export the files as HTML, GIF, JPEG, or Flash files.

Once you're satisfied with the export settings, choose File-Export As. Determine a location for the exported file and name the HTML file. Click on OK, and LiveMotion will render all the necessary graphics and code. To check the results, open the HTML file in your Web browser (A), (B).



More Info: www.macworld.co.uk

For reviews and features on Adobe LiveMotion, go to Macworld Online. Or check out www.webcreate.co.uk, the Web site for digital creatives.



Kid-kind computing

Taking safety steps for computer-mad children. By Franklin Tessler

Today's kids spend hours in front of computers every day. If you think that's good news, you're not alone — parents and teachers everywhere are clamouring for increased funding for computers in the classroom. And after school comes even more computer time, as kids play games, chat, and do homework.

In the rush to plant a computer on every child's desktop, potential risks to children's health have gone largely unnoticed. Although researchers disagree on the scope of the problem, kids are beginning to suffer from the same repetitive-stress injuries, headaches, and other illnesses that have plagued adults for years.

No matter how old a child is, preventing

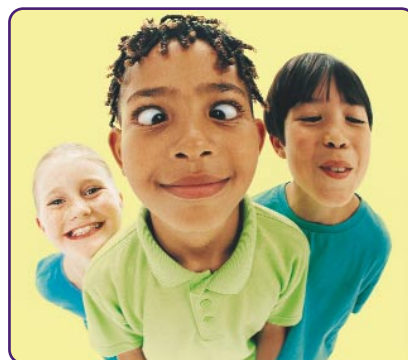
computer-related disorders is much easier than treating them after they strike. You can design children's work areas with ergonomics in mind, and teach kids good habits that will stick with them.

To help you get started, we've compiled tips to help set up kid-safe work areas. To make monitoring their computing habits easier, you may want to locate the family Mac in a room where an adult will spend a lot of time.

For more information check out www.ergonomics.org.uk or www.office-ergo.com or see "Help and advice" on page 120.

Franklin Tessler, MD, has been writing about computer ergonomics since 1991.

continues page 122 ▶



DIGITAL VISION

All ages

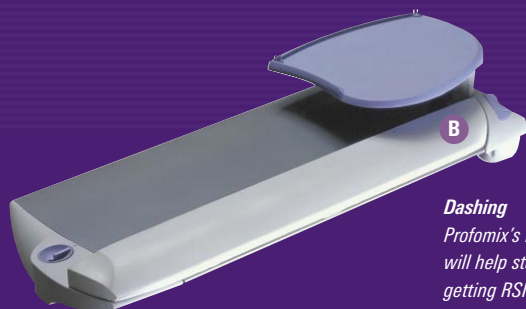
While different body sizes require different ergonomic adjustments, certain basics apply to all children. Kids like to squirm, so getting them to avoid stressful postures is a challenge. Rather than telling children what to do, sit down and show them how to use pointing devices and keyboards without twisting, reaching, or stretching.

Glare is hard on even young eyes. Ambient and task lighting should illuminate the keyboard and work area without overwhelming the

screen (A). Glare shields cut down on reflection, but they also reduce the monitor's effective brightness.

The best way to limit glare is to reorient the entire workstation. An adjustable keyboard tray (B) helps keep hands and wrists in a neutral position. The Dashboard (below) from Proformix (online from, www.proformix.com) costs \$228.

Dangling legs put extra stress on the thighs. If necessary, use a small stool, an old telephone-book, or a knapsack as a footrest (C).



Dashing
Proformix's Dashboard will help stop kids getting RSI.



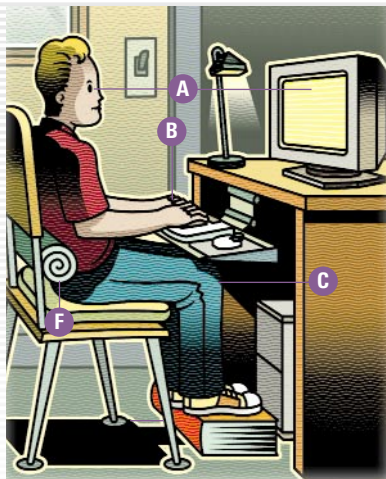
Ages 5 to 10

You wouldn't expect a five-year-old to wear your clothes. Full-size furniture and computer hardware don't fit small kids any better than adult clothes do.

Keep the top of the monitor at, or below, eye level (A), so the child doesn't have to look up to read the screen. Hands and wrists should be straight (B), and elbows and knees should be open to more than 90 degrees (C).

Small hands may find a trackball easier than a conventional mouse. If your child prefers a mouse, try Macally's £19 (www.macally.com) (all prices exclude VAT) USB iMouseJr. (Mac Accessories Centre, 0191 296 1500) (D). DataDesk Technologies' (www.datadesktech.com) £69 Little Fingers (Granada Learning, 0161 827 2927) (E) sports smaller keys, and is also available with an integrated trackball.

A firm pillow, or rolled-up towel (F), keeps backs straight and allows a child to reach the mouse and keyboard without stretching.



Ages 10 to 15

If older kids are big enough, they can use standard computer equipment, desks, and chairs with only minor modifications. Some sources say that wrist pads are fine for resting, but they shouldn't be used when the child is typing (A).

Some children may benefit from Contour Design's Perfit Mouse (B) (prices start at £69; Mygate, 0800 018 1424; www.contourdesign.com), which comes in a range of sizes for left- and right-handed users. If your child is left-handed, put the pointing device to the left of the keyboard.

An adjustable chair (C) supports a child's back and legs. As with smaller kids, feet should lie comfortably on the floor or on a footrest (D).

TIP: Encourage brief breaks every 15 or 20 minutes.



DIGITAL VISION

Advice for parents

The Parents Information Network (PIN, www.pin.org.uk) has published some simple, common-sense advice as part of its Superhighway Safety pack.

The report recommends that children have their "arms roughly

horizontal when using a keyboard". It also advises that kids be made "aware of the alternatives to a traditional keyboard and mouse – ergonomic keyboards, voice-recognition systems, trackballs, handwriting-recognition pads and finger pads".

Help and advice

ORGANIZATION	TELEPHONE	EMAIL	WEB
National Association of Advisers for Computers in Education	0870 240 0480	prof@naace.org	www.naace.org
British Safety Council	020 8741 1231	mail@britsafe.org	www.britishsafetycouncil.co.uk
Ergonomics Society	01509 234 904	ergonomics.org.uk	www.ergonomics.org.uk
Body Action Campaign	020 7580 0984	bac@easynet.co.uk	http://dialspace.dial.pipex.com/town/close/ya57/program.htm
Repetitive Strain Injury Association	0800 0185 012	rsia@dial.pipex.com	www.demon.co.uk/rsi/
British Education Communications and Technology Agency	0247 641 6994	becta@becta.org.uk	www.becta.org.uk
British Health and Safety Society	01527 570 440	none	none



DIGITAL VISION

Dawn of a new Mac OS

Macworld

This is a historic moment. For the first time, Macintosh users have a chance to try an entirely new Macintosh operating system.

More than a facelift, update, or collection of enhancements, Mac OS X is the future. It represents the best Apple has to offer – the latest thing in stability, performance, and human interface. And history teaches us that we will be living with this new Mac OS for a long, long time.

And we have as much responsibility in helping to ensure Mac OS X's greatness as Apple does.

This is a call to action. It is the duty of all of us who care, really care, about the future of the Mac to get a copy of the Mac OS X beta, load it onto a computer, and pound the hell out of it. Write everything down – what works, what doesn't work, and what could work better. Then post your comments to the feedback site Apple has set up especially to gather input on the beta test program.

Macworld will help you understand and ultimately exploit what will be the single most important advancement ever to hit the Macintosh.

Hear and now

Apple doesn't always have the best track record when it comes to listening to its users. Take the

introduction of the original iMac mouse. While reaction to the round mouse was almost universally negative, it took Apple two years to redesign its standard input device. But it wasn't really that big a deal. An operating system is forever. Whatever we ultimately get at the end of this beta process, we will have to live with, every minute of every day, for a long time to come. We need to make sure it's what we want and need.

OS X test track

The operating system is what the Mac is all about. Sure, cool industrial design makes your Mac distinctive and might even make it a bit more useful, but the OS is it. If you can't get your work done using Mac OS X, you're not going to be using it for long, no matter how cool your Mac looks sitting on your desk. And while I don't for a minute think Apple would ship an OS that didn't work, the devil is in the details. It's up to us to communicate how Mac OS X could work better for us.

It's really a bit like getting the keys to a new experimental racing car and being told, "Sure, take it for a few laps around the track. Knock yourself out and let us know where it tops out."

You, *Macworld's* readers, are the best test drivers

Apple could ever hope to have. Macintosh users are in large part the reason the Mac has always embodied a better way for people to use computers. It's true, we're very loyal – but we're also very demanding of our computing platform. It's time to put our critical natures to work, no holds barred, and help Apple build the best possible Mac OS it can.

Mac OS X is the riskiest move Apple has made since Steve Jobs came back to run the company. But, as with most bold and risk-filled ventures, the payoffs are enormous.

If Apple succeeds, it will have delivered what others have only talked about – a fully modern operating system that can be used by anyone from kindergartners to rocket scientists.

Not even Microsoft has managed to achieve this goal, and not for lack of trying.

Apple knows that with your help, it stands a much better chance of achieving this goal.

And I, for one, want the company to achieve it – because I want to use that operating system: an operating system built by the most innovative computer company in the world – and hundreds of thousands of the world's most demanding, nitpicky, and loyal computer users.

MW

Andrew Gore



- Audio on video • XPress layers • Lighten images

Q&A/tips

Handy Mac tips and readers' questions answered. By Christopher Breen

Digital audio on digital video

Q How can I use QuickTime Pro to record a couple of minutes of digital audio with my iMac DV's built-in microphone?

Lawrence Carleton

A If you open SimpleSound and click on the Add button in the Alerts Sounds window, the program limits you to five seconds of recording time. But, instead if you choose New from SimpleSound's File menu, you can record as much audio as will fit on the volume where SimpleSound resides. To gain the maximum recording time, move SimpleSound to your largest hard drive or partition. You can also gain more time by recording at a lower quality – switching from CD to Music quality, for example, gives you four times as much recording time. If you'd like a more capable sound-recording application – one that more clearly defines recording parameters, such as resolution and bit depth, for example – I'd give EJ Campbell's (<http://members.aol.com/EJC3/>) \$20 shareware application, Ultra Recorder, a try. Ultra Recorder doesn't edit audio – meaning you can't use it to divide the audio file into smaller pieces or lop-off pieces you don't care for. But, once you've recorded your audio with either SimpleSound or Ultra Recorder, you can use QuickTime Pro as a simple sound editor – using the Cut and Clear commands to remove selected bits of audio and the Cut and Paste commands to assemble a group of sound clips into a single file.

Retaking shortcuts

TIP One of the Windows features worth stealing is the keyboard shortcut that allows you to cycle through running applications (called keyboard cycling). Apple did steal it – and then assigned it the \mathbb{Q} -tab shortcut and plunked it into Mac OS, beginning with version 8.5. Unfortunately, some mourn the fact that the new \mathbb{Q} -tab shortcut supplants the same helpful key-combination in programs such as FileMaker and QuarkXPress.

You can disable keyboard cycling in several ways. If you're a do-it-yourselfer, just open Apple's Script Editor and enter this simple AppleScript:

tell application "Application Switcher"
set keyboard cycling active to false
end tell

Use this one to turn cycling back on:
tell application "Application Switcher"
set keyboard cycling active to true
end tell

You can also disable \mathbb{Q} -tab with a shareware or freeware utility. My personal favourite – because it's free and doesn't involve a control panel – is Mitch Crane's SwitcherSetup CM (www.macdownload.com). It lets you use contextual menus to switch off keyboard cycling or assign it a different key combination. Catalunya Disseny Informatic's \$5 SwitcherMaster (www.catdis.com/realcode/) provides similar services via a control panel. Although Michael Kamprath's \$10 shareware control panel, Program Switcher (www.programswitcher.com), doesn't specifically let you turn off keyboard cycling, it comes with an AppleScript that lets you turn keyboard cycling on and off with a single script.

Working in Word

TIP If you hit F10 when working in Microsoft Word, lines will appear under letters in the drop-down menu headings – for instance, underneath the F in File. If you then press that letter on the keyboard, the drop-down menu will appear. You can use the arrow keys to navigate the menu and the enter key to carry out an action.

Mac OS 9 shortcuts

TIP With the Beta launch of Mac OS X at Apple Expo in Paris, OS 9's days are now numbered – but many of us are likely to be using OS 9 until well into next year. With this in mind, here are some useful navigation tips and shortcuts that I discovered recently, and which I've found useful.

■ When looking to increase the memory allocation for an application, or to change its sharing options, simply control-click on its alias on



Desktop picture template

If you design Web pages using a large monitor, you can easily check how your page layout will look on smaller screens by customizing Apple's desktop picture. Create a graphic at the exact resolution of your monitor (1,024-x-768, for example), and then draw boxes inside the graphic at other common monitor sizes, such as 800-x-600 and 640-x-480. Set this graphic as your desktop picture. You can then resize windows in your authoring software using the desktop picture as a guide.

Matt J Fuller



Brighten up your light

The tip in *Add a little light* (below) changes the image above, top to the image above, bottom.

your desktop and select "show original" from the pop-up menu that appears. This takes you straight to the actual app icon and is miles quicker than trawling through folders, or even using Sherlock 2.

■ In the About This Computer window (at the top of the Apple Menu, ⌘-click on the Mac OS logo to launch the the Mac OS 9 homepage in your default browser. You can also drag-&-drop fonts, control panels and extensions on the Mac OS icon to have them automatically routed to the appropriate place in the System folder.

■ Re-order items in the Control Strip for your own convenience by option-dragging the icons.

Working with XPress layers

TIP Enabling users to keep track of objects when there is a mass of page furniture has never been a strength of QuarkXPress. The Send to Back (shift+F5) and Bring to Front (F5) commands are, at best, crude tools when there are stacks of objects to be placed and repeatedly accessed. However, holding down ⌘-control-shift while clicking enables the user to scroll through and select layers from top to bottom. This is especially useful when working with multi-layered charts or tables.

Another object-position keyboard trick can be used when looking to insert an object at an exact point in a stack of other page elements. First, bring the object to the front and position it as required. Keep it highlighted and hit option-shift-F5. Each hit of these keys will move the object down one place in the stack of page elements until it is in the right order. Option-F5 will bring the object forward one layer.

Photoshop file names

TIP From Photoshop 4.0 and 5.0 there's a handy keyboard shortcut for file naming. In the Save dialogue window, hold down the option key when selecting file types (hold down the Control key in version 5.5). This automatically adds the appropriate suffix to your file name. For TIFFs it will add .TIF, for JPEGs, .JPG and for GIFs, .GIF – meaning you can keep track of file types with no extra effort.

Passwords remembered

TIP Many of us are overloaded with passwords, user names, and serial numbers – for email accounts, access to Web sites, access to ftp servers and others. Although you can use Apple's Keychain to store some of this information, a more comprehensive solution is Alco Blom's Web Confidential. This \$20 shareware utility allows you to organize, store, and encrypt not only common electronic data such as passwords, but also PIN and cash machine numbers.

Add a little light

TIP If parts of an image are too dull, use Adobe Photoshop to brighten them up. First select a new Color Dodge layer – on the drop down menu of the layers palette. Then, working on the new layer, use a low-pressure – about five per cent – white air-brush to paint over the area you want to lighten. This method is especially good for enhancing light sources – particularly in RGB images.

LocalTalk troubles

TIP If you have a LocalTalk printer attached to your ethernet network via some variety of LocalTalk-to-ethernet adaptor – Farallon's iPrintLT, for example – and the printer suddenly fails to appear in the Chooser, try this: Unplug the power connector to the adaptor to reset the adaptor. On rare occasions, these adaptors can become confused, and will refuse to establish a viable connection between your network and the printer. Resetting the adaptor by turning it off for a short time often clears this connection.

Equation quandary

TIP If you've attempted to use the equation editor found in AppleWorks 5 and 6, and are presented with an error that tells you the installed Symbol font is not the correct one, there is a way to put things right. Remove the Symbol font from the Fonts folder inside your System Folder and perform a custom installation of the AppleWorks installer. You need to install the Equation Editor – which contains a compatible version of the Symbol font – which is part of the Writing Tools.

Photoshop speed-up

TIP Applying a filter to an image in Photoshop can be a memory-intensive task, especially if the file is a large one. The process can be quickened by applying the desired filter to each channel individually. Also, setting the monitor colour-depth to 256 rather than thousands or millions means Photoshop will be far less memory-hungry, helping speed it up.

A guide through XPress

TIP Ever had trouble moving guides in QuarkXPress when they're behind text or picture boxes? The answer is simple: just hold down ⌘ before you click on the guide, and XPress will ignore any items in front of it.

Mac OS X Beta installation

TIP When installing Mac OS X Beta on a Mac that has two IDE drives set up in a Master/Slave configuration, install OS X on the master drive. If OS X Beta is installed on a slave drive, the Mac will stop responding.

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Macworld's deputy editor David Fanning and contributing editor Christopher Breen answer readers' questions and select reader-submitted tips for this column. Send your question or tip (include your address and phone number) to David Fanning, Q&A, Macworld, 99 Gray's Inn Road, London WC1X 8UT. You can also send email, marked Q&A in the subject line, to qanda@macworld.co.uk. We pay £25 for each tip published here. We cannot make personal replies, so please do not include a stamped-addressed envelope.

Use Microsoft Outlook Express 5 to control your email

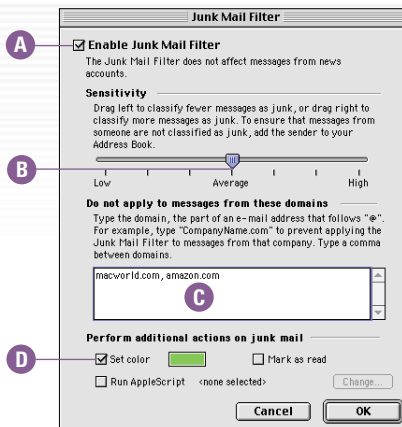


Thanks to email, we have instant communication with family and friends, easy business collaboration, and endless opportunities for workplace humour. The downside is unsolicited commercial email, or spam – and workplace humour. As soon as you open an email account, you start receiving unwanted offers for fake business-opportunities and steaming-hot pornography. This load of spam is on top of your legitimate mail, which, however welcome, adds up quickly. Controlling this deluge of mail can be a challenge if you don't have

a top-notch email program such as Microsoft's Outlook Express (OE) 5, which has an arsenal of weapons for filtering spam.

If you don't already have this latest version of OE – it ships with Mac OS 9 – there's a free copy on our cover CD. Because OE will share most of its email interface and features with Entourage – the email client in Microsoft Office 2001 for the Mac – learning how to create Mail Rules with OE now, will give you a leg-up later.

Tom Negrino



1. Junk Mail Filter To prevent being traced, spammers often put false information in their email's From field. This filter scans every incoming message for signs of forgery.

Open the Junk Mail Filter dialogue box from the Tools menu. Make sure the Enable Junk Mail Filter check box (A) is selected.

Next, set the Sensitivity slider (B) according to your needs. The slider determines how vigilant Outlook Express is at classifying spam. The Average setting will satisfy most people, but you should experiment with it. If too much junk is getting through, adjust the Sensitivity setting until you're pleased with the results.

The filter sometimes errs on the side of junkiness, classifying mail that's from unfamiliar correspondents as spam. To protect future messages from legitimate, but infrequent writers, add their addresses to the Address Book. You can also instruct Junk Mail Filter to ignore all messages from a specific legitimate domain – such as macworld.co.uk – by entering the address in the Domain window (C).

To be able to spot junk in your mail folders at a glance, select Set Color (D) and choose a colour swatch.

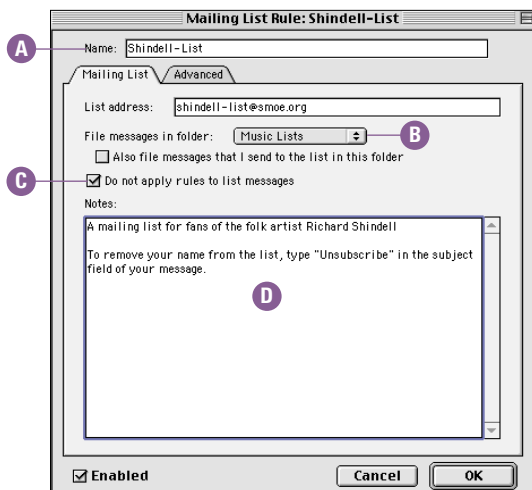
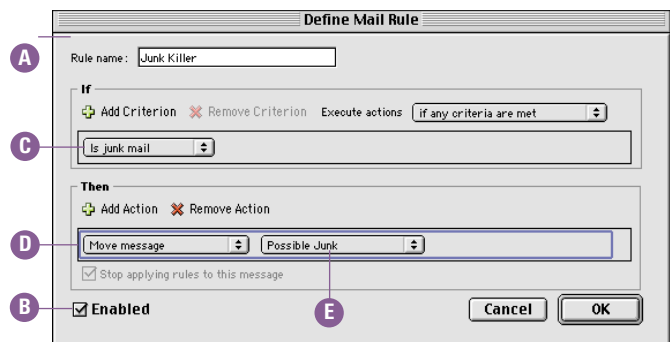
2. Organize messages Junk Mail Filter only flags messages as potential spam. Use Mail Rules to automatically file messages into folders, forward email to colleagues, or send automated replies.

Because Junk Mail Filter isn't perfect, you'll want to create a rule that automatically sends all junk mail into a folder called Possible Junk, so you can decide if individual messages need to be deleted or have been unfairly maligned.

Choose Rules from the Tools menu and click New. Name the new rule (A) and make sure that Enabled is selected (B).

The If section of the window determines which criteria messages must meet for the rule to apply. Click on the pop-up menu (C) and choose Is Junk Mail from the list of options. The Then section specifies which action the program should take. Choose Move Message from the pop-up menu (D). A new pop-up menu will appear to the right, choose the folder in which you want the junk mail to appear (E).

Tip: Mail Rules applies rules in order. If it appears that a rule you created isn't working, another, higher rule may be interfering.



3. Manage your lists A special type of bulk email comes from mailing lists. There are mailing lists on every subject you can name, from skiing to your favourite music. OE 5's Mailing List Manager helps you efficiently manage mailing lists.

It's a good idea to file list mail in folders separate from your personal or business mail. First, select a mail message that came from the mailing list, and choose Mailing List Manager from the Tools menu. Click on New. You'll usually want one rule for each list.

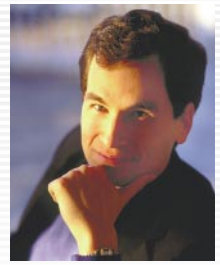
Outlook Express uses the list's address as its default name, but you may want to change it to something a bit more descriptive (A).

Choose the destination folder for the list mail from the File Messages In Folder pop-up menu (B).

You can apply regular Mail Rules to list messages, but most people need file list messages only somewhere they're easily found. In this case, leave the Do Not Apply Rules To List Messages option selected (C).

Tip: When you first subscribe to a mailing list, you usually get instructions on how to unsubscribe – you can copy and paste these instructions into the Notes field for future reference (D).

DAVID POGUE is the author of *iMac for Dummies* (IDG Books Worldwide, 1998) and the *Great Macintosh Easter Egg Hunt* (Berkely Books 1998). He also wrote *Macs for Dummies*, fifth edition, updated for Mac OS 8, *The Weird Wide Web* (IDG Books Worldwide, 1997) and *The Microsloth Joke Book* (Berkeley, 1997). His most recent books are *Mac OS 9: The Missing Manual* and *iMovie: The Missing Manual* (both Pogue Press, 2000).



Bully for you, Jobs

The other day, I heard an Apple programmer griping about Steve Jobs. It was the usual complaint: Steve wasn't taking opinions, conducting focus groups, or performing usability testing. He wanted things done Steve's way.

For years, these stories have upset me. I'm a firm believer that if something is worth doing, it's worth doing politely. There's no CEO on earth who couldn't benefit from weighing opinions, considering all options, and occasionally doling out a little praise. Yeah, OK, Steve saved Apple in a big, glorious, sustainable way; introduced some brash, bold, brilliant ideas to the technology world; and changed the course of computer design forever. But jeez – does he have to be such a bully?

Well, yes.

I came to this startling realization when I read *On the Firing Line*, Gil Amelio's book about his 500 days as Apple's CEO. What's most intriguing about the book is the "damn frustrating" inertia and paralysis Amelio says he found at Apple. He'd schedule a meeting: "People who were specifically invited didn't even bother to show up." He'd outline the company's strategy to department VPs: "They listened politely but did nothing." He'd make a decision: "Every time, an internal campaign would be mounted to reverse the decision." He'd try to focus the company's efforts (which included "the Newton, publishing, media authoring, servers, Pippin, imaging, consumer, K-12, the PowerBook, Copland, OpenDoc, and the Internet"): "No one would listen. Nobody would agree to give anything up."

Reviewers have already pointed out that Amelio's entire book is just a 300-page "Don't blame me!" statement, and that he's fishing for sympathy when he's the one who failed to save the company. But even if what he says is only half true – for example, that "everything at Apple felt like bench-pressing 500 pounds" – it tells you something: by 1997, Apple's employees had become the boys on the *Lord of the Flies* island. The pirate-flag-waving atmosphere that Jobs had created in the '80s had grown wildly out of control, and the ship's rudder was completely disconnected.

Yes, Jobs had ideas; yes, he's charismatic; and yes, he had power and influence in Silicon Valley. But those

traits don't fully explain how he turned Apple's image around. And they certainly don't explain how he made the company profitable – an astonishing feat for a guy who never went to college, let alone business school. How was Jobs able to make Apple profitable where a string of experienced corporate veterans (and even "turnaround artists" such as Amelio) had failed?

By being a force of nature. By cutting like a knife through the politics, infighting, and dissension of the 1997 Apple. And yes, by firing people who didn't get with the programme. By moving quickly – too fast for studies, consensus, or focus groups – and making decisions on instinct and experience.

He's not alone, either. Behind some of the greatest commercial success stories, you'll find single-minded entrepreneurs who knew exactly what they wanted and tolerated no argument. *Titanic*, the most profitable movie ever made, was the obsession of James Cameron, who wrote and directed it. Jeff Hawkins had to ram his Palm Pilot idea past legions of doubting venture capitalists, parts suppliers, and Microsoft-worshipping reporters. Linux, *Survivor*, Mrs. Fields' cookies, Federal Express, America Online – same story.

In *Inc.* magazine, Harvard psychologist Steve Berglas recently called for Jobs's resignation, predicting that a desperate Apple may have tolerated Jobs, but a robust Apple won't: "When crises threaten to overwhelm an organization, the usefulness of an egomaniacal leader is unparalleled. The rules change radically, however, once a business is established... No one can play the role of enfant terrible indefinitely."

In Apple's case, I'm not so sure about that. It's been a year since Berglas's article, and Jobs has somehow continued to dream-up more *Titanics* and Palm Pilots, sometimes over the objections of his engineers. As it turns out, plenty of people at Apple thought that offering a choice of iMac colours was a stupid idea. The iMac, the iBook, the G4 Cube, and Mac OS X never would have seen the light of day in a kinder, more consensus-driven Apple.

No, I wouldn't want to work for Steve Jobs. And I certainly wouldn't want to be Steve Jobs; he's driven by demons that Wes Craven doesn't even dream about. But as long as he keeps the job, I'll be his customer – and his highly entertained audience. **MW**

"I wouldn't want to work for Steve Jobs. And I certainly wouldn't want to be Steve Jobs; he's driven by demons that Wes Craven doesn't even dream about"